

**HAGERMAN FOSSIL BEDS  
NATIONAL MONUMENT  
WILDLAND FIRE MANAGEMENT PLAN**



February, 2001

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## **EXECUTIVE SUMMARY**

When approved this document will be the Hagerman Fossil Beds National Monument Fire Management Plan. Major components include:

- Current policy for prescribed fires at Hagerman Fossil Beds National Monument
- Current Director's Order #18 Wildland Fire Management. USDI, NPS. 12/01/97
- No wildland fire use program.
- Format changes under current direction of RM-18 "Wildland Fire Management"(2-16-99).
- Updated 1995 Federal Wildland Fire Management Policy and Review.
- Establishment of a Fire Analysis Committee consisting of the Chief Ranger, Chief of Research and the Chief of Maintenance, when this position is filled. The Fire Analysis Committee will meet as needed to review wildland fires, develop alternatives and present them to the Superintendent for approval, following the guidelines established for the Wildland Fire Situation Analysis.

This plan is written to provide guidelines for appropriate management suppression response at Hagerman Fossil Beds National Monument. The plan also initiates further analysis concerning the use of prescribed fire to reduce hazard fuels, restore the natural vitality of ecosystems, remove or reduce non-native species, or conduct research into fire effects.

The effects of fire control in causing changes to natural patterns of vegetation are considered one of the major influences, along with past grazing, that altered natural ecosystems in the Monument. Long-range goals are to stabilize and/or reestablish natural ecosystems that may have existed at Hagerman Fossil Beds National Monument and further site-specific analysis may show that prescribed fire is a principal management tool to accomplish this.

## **INTRODUCTION**

This document is the Hagerman Fossil Beds National Monument (HAFO) Fire Management Plan (FMP). A categorical exclusion for this plan is attached in Appendix D. A categorical exclusion was used for the HAFO FMP because this is only a planning document, not an implementation document. There is no change from current management practices concerning wildland fire, and any future prescribed fires will have a separate environmental document completed before project implementation. The requirements of the National Environmental Protection Act (NEPA) and the National Historic Preservation Act (NHPA) will be met. Resource management objectives for HAFO are described in the HAFO Resource Management Plan and provide resource direction to the Fire Management program.

As a planning guide the FMP defines levels of protection needed to ensure safety, protect facilities and resources, restore and perpetuate natural processes, given current understanding of the complex relationships that exist in natural ecosystems. The FMP complies with a service-wide requirement that parks with vegetation that can support fire, develop a fire management plan and a fire management program reflecting local ecology (Director's Order #18, Wildland Fire Management, 12/01/97). Format for HAFO FMP is found in NPS Reference Manual –18: Wildland Fire Management (2/16/99). Further direction is found in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide (09/98)

Authority for fire management is found in 16 USC Sec. 1 (August 25, 1916), which states that the agency's purpose:

A...is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

This authority was clarified in the National Parks and Recreation Act of 1978:

“..Congress declares that...these areas, though distinct in character, are united...into one national park system....The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.

The authority for FIREPRO funding (Normal Fire Year Programming) and all emergency fire accounts is found in the following authorities:

Section 102 of the General Provisions of the Department of Interior's annual

Appropriations Bill provides the authority under which appropriated moneys can be expended or transferred to fund expenditures arising from the emergency prevention and suppression of wildland fire.

P.L. 101-121, Department of the Interior and Related Agencies Appropriation Act of 1990, established the funding mechanism for normal year expenditures of funds for fire management purposes.

31 US Code 665(E)(1)(B) provides the authority to exceed appropriations due to wildland fire management activities involving the safety of human life and protection of property.

Authorities for procurement and administrative activities necessary to support wildland fire suppression missions are contained in the Interagency Fire Business Management Handbook. Authorities to enter into agreements with other Federal bureaus and agencies; with state, county, and municipal governments; and with private companies, groups, corporations, and individuals are cited in NPS-20 (Federal Assistance and Interagency Agreements). These include the Reciprocal Fire Protection Act of May 27, 1955 (42 USC 815a; 69Stat 66).

Authority for interagency agreements is found in AInteragency Agreement for Fire Management between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture (1997). Authority for rendering emergency fire or rescue assistance outside the National Park System is the Act of August 8, 1953 (16 USC 1b(1)) and the Departmental Manual (910 DM).

## **COMPLIANCE WITH NPS POLICY**

### **NPS Management Policies**

Fire management is an important component of the overall management of HAFO. Fire has the potential to contribute to or hinder the achievement of park management objectives. National Park Service Management Policy states that “.. Park fire management programs will be designed to meet resource management objectives prescribed for the various areas of the park and to ensure that firefighter and public safety are not compromised.”

The HAFO fire management plan will guide a fire management program that is responsive to the park’s natural and cultural resources and to safety considerations for park visitors, employees and developed facilities. The plan incorporates a detailed program of action to carry out fire management policies and objectives.

NPS fire management policy is expressed in Director’s Order #18: Wildland Fire Management (NPS 1998), RM-18: Wildland Fire Management (NPS 1999) and “Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide” (1998). NPS has taken a lead role in considering fire as a fundamental force in perpetuating natural ecosystems, as stated in Director’s Order #18, “All wildfires may be managed to accomplish resource management goals providing they do not compromise firefighter and public safety.”

The Department Manual, DM 910 (USDI 1997) states the following regarding wildland fires:

AWildland fires may result in loss of life, have detrimental impacts upon natural resources, and damage to or destruction of man-made developments. However, the use of fire under carefully defined conditions is to be a valuable tool in wildland management. Therefore, all fires within the Department will be classified either as wildland fire or as prescribed fires.

Wildland fires, whether on lands administered by the Department or adjacent thereto, which threaten life, man-made structures, or are determined to be a threat to the natural resources or the facilities under the Department's jurisdiction, will be considered emergencies and their suppression given priority over normal Departmental programs.

Bureaus will give the highest priority to preventing the disaster fire - the situation in which a wildfire causes damage of such magnitude as to impact management objectives and/or socio-economic conditions of an area. However, no wildfire situation, with the possible exception of threat to human survival, requires the exposure of firefighters to life threatening situations.

Within the framework of management objective and plans, overall wildfire damage will be held to the minimum possible giving full consideration to (1) an aggressive fire prevention program; (2) the least expenditure of public funds for effective suppression; (3) the methods of suppression least damaging to resources and the environment; and (4) the integration of cooperative suppression actions by agencies of the Department among themselves or with other qualified suppression organizations.

Prescribed fires...may be used to achieve agency land or resource management objectives as defined in the fire management plans....Prescribed fires will be conducted only when the following conditions are met:

- a. Conducted by qualified personnel under written prescriptions.
- b. Monitored to assure they remain within prescription.

Prescribed fires that exceed the limits of an approved prescribed fire plan will be reclassified as a wildland fire. Once classified a wildland fire, the fire will be suppressed and will not be returned to prescribed fire status.≡

### **Enabling Legislation**

Hagerman Fossil Beds National Monument was established as a unit of the national park system on November 18, 1988, by Public Law 100-696, The Arizona-Idaho Conservation Act of 1988, Sec 301(a). The law specified the Monument was established to:

- 1) Preserve for the benefit and enjoyment of present and future generations the outstanding paleontological sites known as the Hagerman Valley fossil sites,
- 2) To provide a center for continuing paleontological research,
- 3) And to provide for the display and interpretation of the scientific specimens uncovered at such sites....

The lands managed directly by the park is at present approximately 4,350.7 acres in size, which includes an Idaho State owned section (492 acres), administered by the Monument, under a Cooperative Agreement with the Idaho Department of Parks and Recreation.

A Superintendent manages the Park in accordance with the various acts of establishment, various administrative policies for this category, and according to objectives stated in several park-planning documents.

### **HAFO General Management Plan (GMP)/Fire Management Goals**

The HAFO GMP lists the following goals, which relate to fire management in the Monument:

1. Preserve and protect the paleontological resources of the Hagerman Valley fossil sites, including both specimens and their context.
2. Preserve, protect, and interpret the natural and cultural resources associated with the Monument.
3. Provide for the health and welfare of Monument visitors, researchers and staff.

### **HAFO Resource Management Plan (RMP)/Fire Management Goals**

The HAFO RMP lists the following goals, which relate to fire management in the Monument:

1. Preserve and enhance native flora and fauna
2. Control non-native vegetation

### **HAFO Fire Management and GMP/RMP Goals**

The paramount goal for the fire management program is protection of life, both employee and public. Other important goals are the protection of facilities, cultural resources, protection of threatened and endangered species, maintenance of air quality related values and regional air quality and perpetuation of natural resources and their associated processes. Fire, and the exclusion of fire, have affected the ecosystems of Hagerman Fossil Beds National Monument in the past. Today, fire still impacts the Monument, its neighbors, visitors, and employees. Fire plays a variety of roles. It can injure and destroy; it can also contribute to dynamic processes in diverse plant and animal communities. This fire management plan provides detailed guidelines to implement the preceding policies and objectives in an integrated, logical fashion, tailored to the resources of the Monument.

## **DESCRIPTION OF THE MONUMENT**

### **Physical Characteristics**

The Hagerman Fossil Beds National Monument encompasses 4,350.7 acres of fossil bearing bluffs sweeping up from the Snake River to a plateau 550 feet above and across the river from the town of Hagerman, about 90 miles SE of Boise in south central Idaho.

Physiographically this is part of the Western Snake River Plains and the bluffs are exposures of the Glenns Ferry Formation. A more detailed discussion can be found in the HAFO Resource Management Plan (Jan.1996). The sediments on the steeper slopes have eroded into badlands topography (Alt and Hyndman 1989). Figure 1. Soils are accumulations of sand, sandy-loam and loam, with some areas having significant clay content. Generally soils available water-holding capacity is very low in the Monument. Landslides within park boundaries have caused concern for the protection of paleontological resources and impacts on Sensitive Species.

**Figure 1 HAFO Slope Erosion**



Hagerman Fossil Beds National Monument falls into the Sagebrush Steppe of the Columbia and Snake River Plateaus eco-region. (Bailey, 1995).

## **Biogeography**

### **Sagebrush Steppe**

The plains and tablelands of the Columbia and Snake River Plain characterize sagebrush steppe. These mid-elevation (3,000 feet) plateaus include most of the Northwest's lava fields and are surrounded by lava flows that have been folded or faulted into ridges. Many of the soils in these areas consist of alluvial deposits in stream floodplains and windblown sand and loess.

The climate on these plateaus is semiarid and cool. Average annual precipitation is about 10 inches with precipitation distributed fairly evenly from fall to spring in the form of rain and snow. Annual temperature extremes range from below 0 degrees to above 100 degrees F. December temperature averages 20 degrees F. and July temperatures average 84 degrees F.

#### **a) Vegetation**

Vegetation types are categorized into four major groups (Prentice 1995): the shadscale association [Fourwing saltbrush (Atriplex canescens), Shadscale (Atriplex confertifolia), Green rabbitbrush (Chrysothamnus viscidiflorus), and Indian ricegrass (Oryzopsis hymenoides)], the greasewood association [Greasewood (Sarcobatus vermiculatus), Shadscale (Atriplex confertifolia), Povertyweed (Iva axillaris), and Russian thistle (Salsola kali)], the sagebrush association [Wyoming big sagebrush (Artemisia tridentata), Gray rabbitbrush (Chrysothamnus nauseosus), and Green rabbitbrush (Chrysothamnus viscidiflorus)], and the wetland association found primarily along the Snake River [Willow (Salix spp.), Cottonwood (Populus spp.), Russian olive (Elaeagnus angustifolia), grasses, (Juncus spp., and Carex spp.)]. The sagebrush association is by far the most extensive vegetation type found in the Monument. The predominant vegetation is a variation of sagebrush, shadscale, and short grasses as depicted in Figure 2. Stream channels may support a lush understory of willow and other riparian obligates, but will rapidly graduate to more arid and alkali tolerant species such as greasewood

**Figure 2 HAFO Vegetation Pattern**



**b) Wildlife**

Many wildlife species utilize these areas as seasonal habitat, particularly during the winter months. Larger mammals found in the park include coyote (*Canis latrans*), deer (*Odocoileus hemionus*) and occasionally bobcat (*Lynx rufus*). Smaller species include ground squirrels, Townsend's and Richardson's (*Spermophilus* spp), canyon mouse (*Peromyscus* spp.), and weasels and mink (*Mustela* spp) to name a few. The geography of this area supports habitat that is important for many species of migratory waterfowl. Some waterfowl species utilize the area for breeding and resting with the most dominant species being the mallard (*Anas platyrhynchos*) during migration periods. One of the most abundant bird species is the introduced pheasant (*Phasianus colchicus*). Modest populations of introduced gray partridge (*Perdix perdix*) and chukar partridge (*Alectoris chukar*) occur in the area as well as valley quail (*Callipepla californica*). Golden eagles (*Aquila chrysaetos*) are present all year, but there is no nesting habitat. More extensive discussion of wildlife occurs in the HAFO Resource Management Plan.

## Endangered, Threatened, or Sensitive Species

### Vegetation

There are no threatened or endangered plant species in or adjacent to the Monument.

The following four plant species occurring in the Monument were currently or formally identified as sensitive by the Idaho Native Plant Society: Swamp milkweed (Asclepius incarnata), Snake River milkvetch (Astragalus purshii var. ophiogenes), Packard's cowpie buckwheat (Eriogonum shockleyi var. packardeae), and Torrey's blazing star (Mentzelia torreyi var. acerosa).

Plant community and habitat types in the Monument were described in a sensitive plant survey for HAFO (Prentice, 1995). Plant communities in the Monument have been impacted by man's activities over time, including livestock grazing, water diversions, road construction, off-road vehicle use and fire suppression. Relic areas, where plant communities have not been disturbed by human activities, may be present in some locations of the Monument. Additional plant community inventories proposed in the HAFO RMP will help to identify these areas.

### Animals

Much of the Snake River and many of its reaches have been declared as critical habitat for the Snake River sockeye salmon (Oncorhynchus nerka), a federally listed endangered species and the Snake River fall chinook salmon (Oncorhynchus tshawytscha), a federally listed threatened species. In addition, the entire Snake River Basin has been designated as an Evolutionary Significant Unit for the West Coast steelhead (Oncorhynchus mykiss). Also listed, as "threatened", is the Bull Trout (Columbia R. pop.) (Salvelinus confluentus) within the Columbia River Basin. The Monument site lies adjacent to the Snake River, which is part of the tributary system of the Columbia River.

There are also three listed species of freshwater snails with a home range that includes the proposed museum site acreage in HAFO: the endangered desert valvata (Valvata utahensis) and Snake River Physa (Physa natricaria) and the threatened Bliss Rapids snail (Taylorconcha serpenticola).

The peregrine falcon (Falco peregrinus anatum) is a federally listed threatened species and may be periodically seen in the Monument, but is not a resident.

### Air Quality

Hagerman Valley lies in an arid environment. The closest official weather station is located 9 miles north of Hagerman in the town of Bliss. The ambient air quality in Hagerman is very clean. The exception is blowing dust resulting from strong winds

blowing over tilled agricultural sites. Periodic field burning also impacts the air quality around Hagerman. HAFO is classified as a Class II area under 1977 Clean Air Act Amendments.

### **Cultural Resources**

Prehistoric and historic archeological sites have been found in and near the Monument. The geological and biological diversity of the Hagerman area provided resources for early human subsistence. Human occupation may have occurred as early as 15,000 years ago, about the time of the Bonneville Flood, with evidence of use 10,000 years ago.

Consultation with contemporary Native Americans indicates that in historic times Bannock, Shoshone, and Paiute tribes frequented this area. This area was important to Native Americans for the fishery involved with the site and the associated cultural activities associated with fishing.

Of major historical significance is the Oregon Trail, which traverses the southern end of the Monument and reflects the activities of emigrants and local Native Americans who traded with them on their way west.

### **Paleontological Resources**

Hagerman fossil beds lie on the west side of the park within fluvial and flood plain deposits along the eastern margin of the Glens Ferry Formation. More than 500 fossil sites have been documented over a six square mile area at different horizons within these sediments.

The most notable fossil discovery at HAFO is the “horse quarry” – the largest single deposit of an extinct zebra-like horse ever found. Also preserved in the sediments is a very diverse deposit of fossilized Pliocene animals. Over 100 species of vertebrates have been identified as well as freshwater snails, clams and plant pollen.

Carbonaceous paper shales also exist at HAFO. These shales have high amounts of plant debris representing pond deposits. The shales could reveal important information about the biotic community associated with ponds of the era as well as potential insects.

Recent discoveries of permineralized wood have also been discovered at HAFO. This material could lead to more discoveries about the related environment and related climatic information.

Fossils tend to become exposed through natural weathering processes and landslides. Buried fossils are generally protected from the effects of fire. Exposed fossils do have the potential of being damaged by the heat from fire, especially if the heat is prolonged in nature. Another action posing damage potential to fossils is the implementation of suppression tactics. Trampling, digging and vehicular movement over fossils could damage the fossil resource.

**Hydrology**

The Snake River dominates surface hydrology, Figure 3. The Snake River at the Hagerman site is contained in the Hagerman Reservoir created by Lower Salmon Falls Dam. Subsurface hydrology is dominated by leaking irrigation canals on the plateau. A more detailed discussion of water is found in the HAFO Resource Management Plan.

**Figure 3 Snake River East Monument Boundary**

**Values to Be Protected**

Monument fuels and topography promote the fast spread of wildland fire into and out of the Monument. Due to the combustible nature of HAFO fuels it is important to be aware of values to be protected from the effects of wildland and prescribed fire.

Values within the Monument boundary are focused on the protection of the paleontological sites found throughout the Monument's landscape. The presence of listed sensitive plant species is important. Remnants and potential artifacts of the Oregon Trail and Native American culture are also important to preserve. The impacts of fire on this landscape and the associated values at risk will need to be monitored.

Monument Facilities are minimal at this time within Monument boundaries. Boardwalks, exhibits, signing, roads and trails are the current extent of infrastructure. Future placement of a museum and research facility on the Hagerman side of the Snake River, overlooking the Monument will create some fire concerns as the site is surrounded by burnable vegetation.

Monument fuels and topography promote the fast spread of wildland fire into and out of the Monument. Adjacent farms and associated out buildings could be impacted by wildland fire initiating in the Monument. Values outside of HAFO include homes, outbuildings, vehicles, farm equipment, fences, irrigation pumping stations and agricultural crops. All of these items are of high value and will need to be protected from the impacts of fire.

## **HAFO ADMINISTRATIVE GOALS AND OBJECTIVES**

### **Resource Management Goals and Objectives**

The General Management Plan Environmental Impact Statement for Hagerman Fossil Beds National Monument (GMP, 1996) and the Resource Management Plan for the Monument (NPS 1999) delineate maintenance of native and historic vegetation, and elimination of non-native vegetation and noxious weeds as having high concern and priority. To accomplish this, fire is an integral component, in concert with best available science, to provide stability in Hagerman Fossil Beds National Monument ecosystems.

HAFO General Management Plan has as a management goal to "preserve, protect, and interpret the natural and cultural resources associated with the monument". The Resource Management Plan has the stated goal for HAFO of: "The monument's natural and cultural resources and values will be protected." Fire use is an excellent management tool that can be used to help achieve these goals.

### **HAFO Fire Management Goals and Objectives**

Fire management objectives, are to make the health and safety of personnel and the public the number one priority, promote a program aimed at reducing human-caused fires, to ensure appropriate suppression response capability to meet expected wildland fire complexity and to increase knowledge of the use of prescribed fire for restoration of fire-dependent ecosystems and species-specific resource management goals. To implement NPS Management Policies governing fire management, the NPS will administer its wildland fire program in a manner that will:

- 1) Provide for the safety of personnel and the public as the number one priority.
- 2) Protect property, and resources from wildland fires at costs commensurate with resource values at risk.
- 3) Promote a fire management program and aggressively control all wildland fires with the appropriate management response.
- 4) Study the use of prescribed fire to reduce hazard fuel accumulation, restore fire to fire-dependent ecological communities, and to maintain cultural/historic scenes where appropriate.
- 5) Use appropriate suppression tactics and strategies that minimize long-term impacts of suppression actions.
- 6) Educate employees and the public about the scope and effect of wildland fire management, including fuels management, resource protection, prevention, hazard/risk assessment, mitigation and rehabilitation, and fire's role in ecosystem management.
- 7) Stabilize and prevent further degradation of natural and cultural resources lost in and/or damaged by impacts of wildland fires and/or fire management activities.

- 8) Maintain the highest standards of professional and technical expertise in planning and safely implementing an effective wildland fire management program.
- 9) Integrate fire management with all other aspects of park management.
- 10) Manage wildland fire incidents in accordance with accepted interagency standards, using appropriate management strategies and tactics and maximize efficiencies realized through interagency coordination and cooperation.
- 11) Accomplish resource management objectives, including restoration of the natural role of fire in fire-dependent ecosystems, when site specific analysis indicates it is appropriate.
- 12) Manage a prescribed fire program responsive to HAFO air quality related values and regional haze requirements of the Idaho State smoke implementation plan.

## **HISTORIC ROLE OF FIRE**

### **Fire Ecology**

Many native and exotic plant species are fire-adapted. Their response to fire varies with severity, soil and duff moisture, and the physiological stage of the plant. Adaptations to fire include basal or underground buds on rhizomes, roots, or root crowns. Some plants, including grasses, have tufted crowns to protect buds near the surface. Less fire-adapted species re-establish from off-site seed sources.

It is possible to promote the establishment and or persistence of native or non-native plant species within the landscape through the use of fire. Therefore it is important that fire effects in relation to an undesirable species be known and mitigated for, when using prescribed fire in HAFO. A list of plant and animal species is contained in Appendix C.

Wildlife abundance and diversity depends on the quality and distribution of suitable habitat. Some mammals depend on recently burned areas for food. Predators, depending on food from burned site consumers, may be favored by fire. Many primary consumers favor some level of succession after fire for food or breeding habitat. Mule deer use the shrub/grass/forb fields that follow a fire.

### **Fire History**

Lightning ignitions have always been a factor in determining wildland fire loads in HAFO. Human-caused fires have burned over this area for at least the past ten thousand years of documented human occupation. Native Americans used fire to manipulate vegetative cover, improve feed and habitat for important game species, and remove unwanted vegetation from cultural and geologic features.

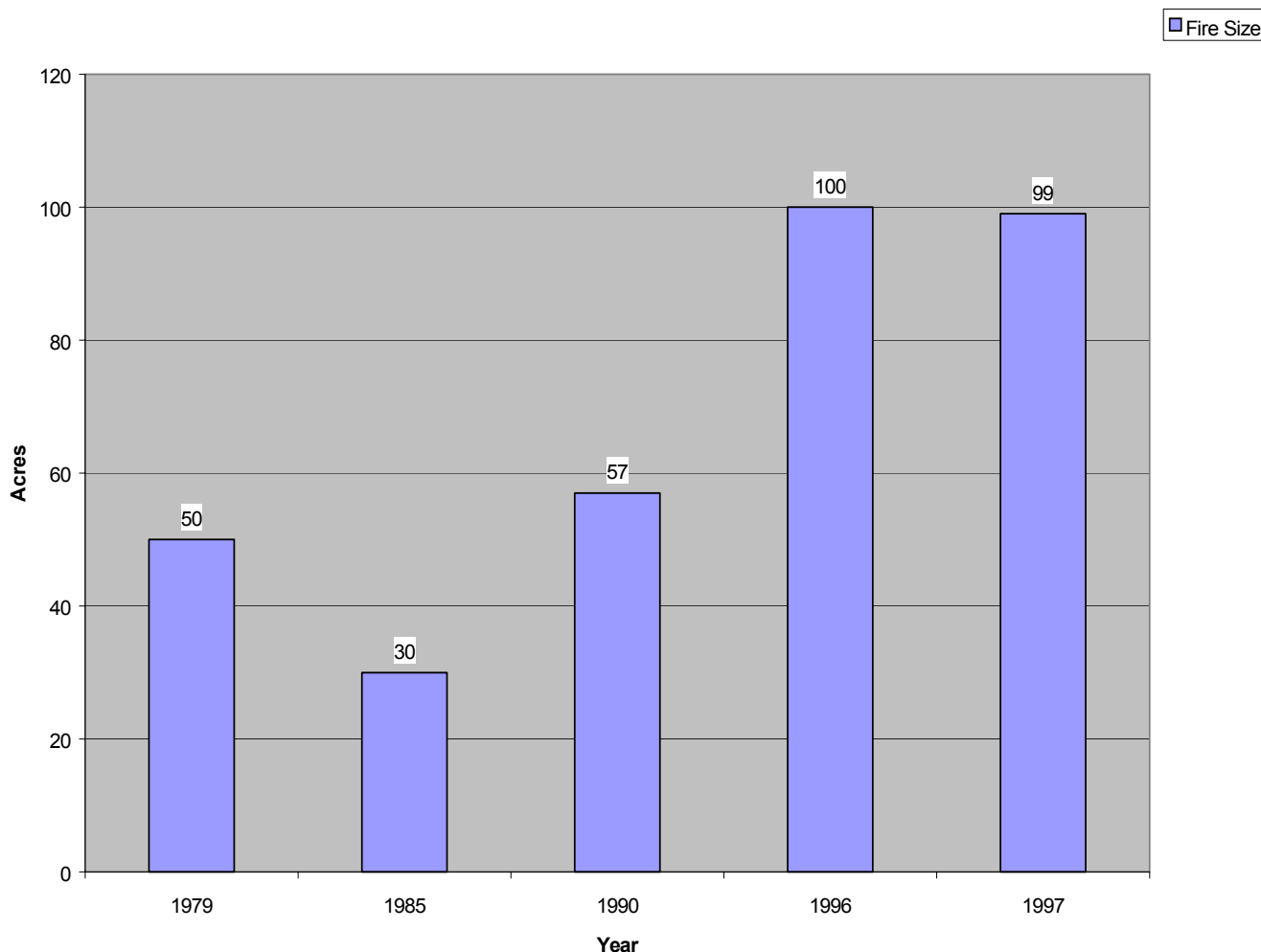
At present there is very little known concerning a site specific fire return interval for HAFO. Studies for other sagebrush-dominated ecosystems show a fire return interval range of 20-50 years, although the invasion of cheat grass (Bromus tectorum) may be shortening the fire return interval.

### **Modern Fire History**

Numerous wildland fires occur annually on lands surrounding the Monument as well as in the Monument. Since 1979 there have been 5 fires that have occurred at least partially on Monument lands. These fires range from approximately 30 acres to 100 acres in size as shown in Figure 4. Potential exists for human-caused fires resulting from agricultural practices by individual landowners and recreational users. Wildland fires of lightning origin do occur on lands within and adjacent to the Monument.

After the 1900's the activities of man interrupted the natural fire interval and patterns of burning. Livestock grazing reduced the light fuels that had historically carried fires on the slopes leading from the Snake River. Invasions of cheat grass (Bromus tectorum) may be changing the frequency of fires by providing a continuous layer of flash fuels on

Figure 4 HAFO Modern Wildland Fire Size



some sites. The normal ignition component for a site containing native flora ranges from 60-70 percent whereas a site containing cheatgrass has an ignition component of 90-100 percent. The result is that the periodicity of fire on the site decreases from a range of 20 to 50 years to a shorter range of 9 to 10 years. This decrease in periodicity creates a vegetative type change favoring the non-native cheatgrass. A possible outcome of this decrease in periodicity is the potential for increases in smoke production from wildfires during periods of low smoke dispersal conditions.

A full fire suppression policy has continued to the present under the management of the National Park Service. Fire no longer provides a restoration role it once did in the vegetation of Hagerman Fossil Beds National Monument.

## **WILDLAND FIRE MANAGEMENT SITUATION**

### **Prescribed Fire**

The use of prescribed fire to achieve resource objectives as well as a tool to reduce high fuel loadings will be analyzed. Future prescribed fire projects will be planned and implemented using the latest guidelines and policies. Programmatic NEPA compliance for using prescribed fire will be accomplished prior to implementation of prescribed fire projects. Skills for implementing a prescribed fire program will be obtained within and outside of HAFO. The prescribed fire program will implement strategies to minimize impacts of smoke on air quality values within the monument and regional haze.

### **Historical Weather Analysis**

Most fires in the area occur during the summer months with the majority of ignitions in July, August and September. These months are generally hot and dry. Maximum August /September temperatures can exceed 100 degrees.

### **Fuel Characteristics**

Two different fuel types are currently recognized in the Monument. Associated National Forest Fire Laboratory (NFFL) and National Fire Danger Rating System (NFDRS) models are used for fire behavior predictions (Anderson 1982, Deeming and others 1977) and preparedness planning respectively. Fuel Model 1 and Fuel Model 2 of the NFFL fuel modeling system generally represent wildland fuels in the Monument. Both of these fuel models exhibits fast rates of spread, especially under wind and/or slope effects. Residual burn time is also relatively short as the high proportion of fine fuels burnout quickly.

<b>Table 1 Fuel Characteristics</b>				
Fuel Model	Rates of Spread	Residual Burn Time	Resistance to Control	*Percent of Monument Area
1	Very high	Short	Low	10%
2	Very high	Relatively short	Moderately low	60%

\* The other 30% is bare ground or ground with sparse vegetation that will not carry fire or small sites that are not large enough to create fire spread problems.

The following information is provided for fuel types and models currently being used.

### **Grass (NFFL MODEL #1, NFDRS MODEL L, Figure 5)**

These areas are characterized by open grasslands and are dry, which allows surface fires to move rapidly through the cured grass and associated shrubs and forbs. Monument sites where grass is the predominate fuel are those areas that have seen wildland fire in the recent past and areas where agricultural uses enhanced exotic grass invasions.

Fire spread in NFFL 1 is governed by the fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Generally, fires are of moderate intensity with rapid rates of spread of 50 to 80 chains/hour (3,300-5,280 feet/hr.) and flame lengths of 3 to 4 feet. (6 mph midflame winds on a 30% slope)

**Figure 5**

**HAFO NFFL Fuel Model 1**



**Sagebrush (NFFL MODEL #2, NFDRS MODEL T, Figure 6)**

Wyoming big sage is the dominant shrub of the vegetative community at HAFO. Native and non-native grasses are also found to varying degrees in this community. Vegetation remains green during the first half of the fire season. Later on, as it cures, this community becomes more flammable. Fire spread through these areas is accelerated with high winds.

Fire spread in NFFL 2 is primarily through the fine herbaceous fuel, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrub contributes to the fire intensity. Rates of spread in this fuel type can range from 56-60 ch/hr (3,700-3,960 ft/hr) with associated flame lengths of 8-11 feet. (6 mph midflame winds on a 30% slope)

**Figure 6**

**HAFO Fuel Model 2**



**Fire Season:**

Records show that HAFO's fire season is from early June through mid-September, peaking in late summer when fuel moisture conditions are extremely dry. A slight amount of fire activity occurs at the both ends of this period, extending the season from mid-May to the first of October. Depending on the specific weather of any particular year the seasons may be shorter or longer.

**Fuel Characteristics (Historic Observations):**

Fuels in HAFO, prior to extensive human manipulation, generally favored grasses and forbs with stands of sagebrush and other associated brush species. The intensive utilization of this vegetation pattern by cattle and sheep reduced the grass and forb components allowing the less palatable brush species to dominate the landscape. The reduction of native grasses and forbs reduced fine fuels leading to less impact from wildland fires as the fast spreading component of the fuel bed was reduced. Preliminary findings of the Columbia Basin EIS show that there have been "high" relative changes to

warm Big Sagebrush – warm, Low Sagebrush - Xeric and Wheatgrass – grassland ecosystems.

### **Control Problems**

(Summarized in fuel characteristics chart) These fuels exhibit high rates-of-spread and intensities that make initial attack at the head of the fire unsafe for hand crews. Mop-up activities generally are of short duration due to fine grassy fuels and brush being quickly consumed in a wildland fire and the lack of duff and larger fuels in the fuelbed to hold fire for longer durations.

### **Fire Effects**

Understanding the effects of fire on fuel loads, plant and animal communities, and ecosystem processes is essential to the Monument's fire program. Dependent upon available funding a program utilizing permanent transects will be initiated, based on the National Park Service Western Region Fire Monitoring Handbook, to determine fire effects on fuel loads and vegetation, and to monitor conditions of these resources over time in areas that will be burned. This will be an on-going program, which will include inventories of conditions prior to burning and monitoring periodically following burning. Fire behavior and weather will be monitored during each prescribed fire so that fire effects can be evaluated in terms of observed burning conditions and fire behavior. The monitoring program will allow managers to determine how well goals and objectives for each fire are met.

Fires within the grass fuel models of Hagerman Fossil Beds National Monument are of low to moderate intensity and of short duration. Fires within this fuel type spread very rapidly under the influence of wind and topography. Fire intensity is generally sufficient to consume all herbaceous surface fuels, and kill shrubs, and scorch trees where present.

Fires in the sagebrush models will generally kill much of the shrubby component, allowing grasses and forbs to reestablish in these areas with increased vigor and fire induced flowering. Fire can increase the presence of non-native species, such as cheat grass. Therefore it is very important that prescribed fires determine a project implementation date and prescription that will minimize habitat enhancement for non-native species and maximize re-establishment of native flora.

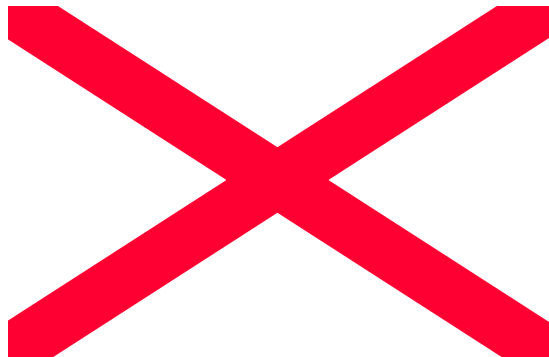
## **SCOPE OF WILDLAND FIRE MANAGEMENT PROGRAM**

### **Wildland Fire Management Strategies**

#### **Wildland Fire**

- a) **Wildland fire suppression:** The appropriate management response will be implemented for all wildland fires in the Monument. Fire suppression tactics will utilize Minimum Impact Suppression Tactics while maintaining safety of personnel and the public as the first priority.
- b) **Wildland fire use:** Wildland fire use, as a fire management strategy will **not** be used at HAFO. The reasons for this decision are two-fold. The first reason is due to the topographic features of the Monument. The general Monument topography contains steep ground, leading from the Snake River to private land at the top of the bluffs as pictured in Figure 7. The second reason is the fast burning nature of the fuels in the Monument in conjunction with the proximity of the Monument boundary. The fuels generally exhibit fast burning, high rates of spread especially under wind and slope effects. The high length to width ratio of the HAFO boundary does not give a wildland fire much room before impacts to other land ownerships occur. A view of the topography of the park is in Figure 7, which depicts the Monument area as that zone between the Snake River and the flat agricultural ground at the top of the bluffs.

**Figure 7 HAFO General Topography**



**Prescribed Fire:** At this time there will **not** be a prescribed fire program at HAFO. The viability of using prescribed fire for attaining future resource benefits will be analyzed during this planning cycle. Analysis will focus on the following:

a) **Hazard fuel reduction:**

Hazard fuel reduction may occur in the Monument. Hazard fuels are those fuels that have unnaturally accumulated within Monument boundaries as well as natural fuels that threaten developed facilities.

b) **Ecosystem management:**

Fuels in prescribed fire projects, designed to meet resource management objectives, will be reduced either mechanically or using prescribed fire. Ecosystem management projects, which enhance natural processes and native flora and fauna while using prescribed fire, will be actively pursued. All prescribed fire projects will be designed to minimize the effects of smoke on the air quality values of the monument as well as meeting the regional haze rules of the State of Idaho.

When it is determined that prescribed fire will be used in HAFO, all prescribed fire projects will have a Superintendent approved Prescribed Fire Plan containing the appropriate compliance documentation and will only be implemented under the constraints of that plan. Personnel positions listed in the Prescribed Fire Plan must be on site before the prescribed fire is implemented.

### **Fire Management Units (FMUs)**

There is one FMU for HAFO and it is the Monument itself, including the new site for the Administrative/Museum buildings. Discussion of the HAFO FMU is incorporated in the FMP and will not be discussed separately.

## **FIRE MANAGEMENT ORGANIZATION AND RESPONSIBILITIES**

The Chief Ranger manages the Fire organization at HAFO with oversight from the Superintendent. This is a collateral duty position. Currently the only red-carded people on the Monument are seasonal Park Rangers. All other personnel assume collateral fire duties as their qualifications allow. Roles of pertinent positions and fire management are summarized as follows.

### **Fire Analysis Committee**

Consisting of the Chief Ranger and the Chief of Research at HAFO will meet as needed to review wildland fires, coordinate actions, develop alternatives, and present them to the Superintendent for approval. The Chief of Maintenance position will also become a member of the Fire Analysis Committee upon creation and filling of the position. Guidelines for their work are those established for the Wildland Fire Situation Analysis (WFSA).

### **Superintendent**

Is responsible for managing wildland fire programs according to Department policy, RM-18, and policy updates. Major wildland fire duties include:

- 1) Approve the Monument's Fire Management Plan and any proposed revisions.
- 2) Sole authority to approve prescribed burn plans.
- 3) Select and approve action alternatives from among those developed by the Fire Analysis Committee when needed (i.e., WFSA process).
- 4) Provide direction directly to Type 1 and Type 2 incident commanders working in the Monument, or designate a representative to do so, as needed.
- 5) Delegate's specific authority to delegated individual with Fire Management Officer collateral duties for mobilizing equipment and personnel.
- 6) When needed, coordinate with adjacent land managers to establish a Multi-Agency Coordination Group to develop objectives and priorities on fires involving multiple ownership or jurisdiction.

### **Acting Superintendent**

Is delegated all decision making responsibility when the Superintendent is absent from the Monument.

**Chief Ranger**

(Collateral Duty Fire Management Officer)

Oversees the fire management program and ensures its coordination with emergency services and resource management programs. The Chief Ranger position with collateral Fire Management Officer (FMO) duties has direct responsibility to plan and implement the Monument's suppression, preparedness and prescribed fire activities. The major duties related to wildland fire include:

- 1) Chair the Fire Analysis Committee, to review situations as needed and develop a WFSA (wildland fire) and analyze and estimate impacts of proposed strategy alternatives on Monument resources.
- 2) Approve and implement any fire-related use restrictions.
- 3) Conduct reviews of Monument fires as specified in this plan.
- 4) Develop vegetation management objectives for the Monument, including identification of areas of potential benefit from prescribed fire, develop or review prescribed burn objectives, and monitor post-burn fire effects. Establish burn monitor plots, as needed.
- 5) Develop, update and/or review fire plans, including implementation or assistance in prescribed burn plans, for resource management
- 6) Manage budgets for both allocated and emergency fire accounts.
- 7) Ensure fire equipment readiness during fire season.
- 8) Acts as a liaison between the Dispatch Duty Officer (as agreed to in the Southern Idaho Interagency Dispatch Center Annual Operating Plan) and the Park Superintendent during initial attack fire operations and within delegated authority arrange for additional equipment, personnel and logistical support as needed.
- 9) Call Fire Analysis Committee to meet as needed. Prepare WFSA after developing alternatives and estimating probability of success.
- 10) Coordinate off-Monument dispatches of personnel
- 11) Inform and consult with System Support Office (SSO) FMO when a Monument fire reaches 10 acres.
- 12) Monitor fire danger conditions, implement step-up plan activities, and recommend appropriate use restrictions.

- 13) Ensure completion of fire reports and other administrative records.
- 14) Serve as liaison with other agencies regarding wildland fire activities.
- 15) Prepare fire reports, route for signature and maintain fire records, including fire reports, dispatch fire reports, weather information, resource orders, and situation and fire reports as needed.
- 16) Prior to fire season, update lists of contact phone numbers.
- 17) Provide for development of fire qualifications for selected employees and make them available during on going Monument fires.
- 18) Ensure that State of Idaho smoke implementation plan guidelines are incorporated into all prescribed fire plans.

The Chief Ranger is also HAFO's Public Information Officer. The main duties of the position related to fire management are:

- 1) Provide for development of fire qualifications for selected employees and make them available during on going park fires.
- 2) Provide assistance in fire prevention and public information and education as described in appropriate sections of this plan.
- 3) Serves as Information Officer for on-going Monument fires.
- 4) Ensure that museum collections are protected from smoke damage.

#### **Maintenance Supervisor**

Will one day manage the Monument's buildings, comfort stations, roads, trails, vehicles, and utilities. When a maintenance position is established the main duties of the position as related to fire management will be:

- 1) Implement/assist in closures of roads, trails, and other facilities. (Currently accomplished by the Chief Ranger)

#### **Administrative Officer**

Manages Monument administrative functions including personnel, procurement, budget, and phone and computer support. The main duties of the position related to fire management are:

- 1) Provides emergency procurement assistance for on going Monument fires.

- 2) Provides services in timekeeper, travel and budget clerks for fire management.
- 3) Provide communications with field fire personnel as needed.

### **Incident Commanders**

Use strategies and tactics as directed by the Superintendent and WFSA where applicable to implement selected objectives on a particular incident. A specific Limited Delegation of Authority will be provided to each Incident Commander prior to assuming responsibility for an incident. Major duties of the Incident Commander are given in NWCG Fireline Handbook, including:

- 1) Brief subordinates, direct their actions and provide work tools.
- 2) Ensure that safety standards identified in the Fire Orders, the Watch Out Situations, and agency policies are followed at all times.
- 3) Personally scout and communicate with others to be knowledgeable of fire conditions, fire weather, tactical progress, safety concerns and hazards, condition of personnel, and needs for additional resources.
- 4) Order resources to implement the management objectives for the fire.
- 5) Inform appropriate dispatch of current situation and expected needs.
- 6) Coordinate mobilization and demobilization with dispatch and the FMO.
- 7) Perform administrative duties; i.e., approving work hours, completing fire reports for command period, maintaining property accountability, providing or obtaining medical treatment, and evaluating performance of subordinates.
- 8) Ensure aviation safety is maintained to the highest standards.

### **Interagency Agreements**

Hagerman Fossil Beds National Monument has good working relationships with other local land management agencies. This is beneficial because of the lack of initial attack capability of HAFO with a 1952 vintage engine and only two seasonal employees with only basic red-card qualifications. Staffing of the engine will need to be augmented by other agency initial attack red-carded personnel. The collateral duty FMO is the primary liaison for wildland fire. Cooperative agreements with various federal, state and local agencies (Appendix H) generally provide that resources of each agency are available to provide initial attack efforts.

Requests for additional personnel and equipment are made through Southern Idaho Interagency Dispatch Center.

Hagerman Fossil Beds National Monument will use the Incident Command System (ICS) as a guide for fireline organization. Qualifications for individuals is per NPS Wildland Fire Qualifications and Certification System, part of NIIMS and the National Wildland fire Coordination Group (NWCG) Prescribed Fire Qualification Guide. Depending on fire complexity, some positions may be filled by the same person.

### **Initial Attack Teams**

Will consist of experienced, well-qualified firefighters and others on possibly their first fire. Teams will be prepared and equipped with hand and power tools as needed and will be dispatched with a day's supply of food and water, so they can continue work for 24 hours without additional support. On most fires, initial attack teams should consist of three persons. Due to the lack of red-carded firefighters within park staff these teams will be ordered through the Southern Idaho Interagency Dispatch Center and may be augmented by permanent or seasonal "Red-card" certified HAFO Rangers.

### **Park Rangers**

Permanent and seasonal Park Rangers are supervised by the Chief Ranger who may or may not have a red-card certification. Red-card qualified Park Rangers will constitute a fire fighting resource, commensurate with their individual red card qualifications, which will be available for incident dispatches through the SIIDC.

## **WILDLAND FIRE MANAGEMENT**

Fire program management describes the operational procedures necessary to implement fire management at Hagerman Fossil Beds National Monument. Program management includes: fire prevention, preparedness, emergency preparedness, fire behavior predictions, step-up staffing plan, fire detection, fire suppression, minimum impact suppression, minimum impact rehabilitation, and documentation.

### **Wildland Fire Use:**

Because of the fast spreading characteristics of the Monument's fuels and the high length to width boundary ratio of the Monument site, allowing for a very high probability of wildland fire escaping to other land owners, there will **not** be a strategy of "wildland fire use" on the Monument.

### **Wildland Fire Suppression:**

#### **Range of Potential Fire Behavior**

Wildland fires in the Monument can exhibit very high rates of spread especially after annual grasses have cured for the season. Fuel Model 1 at a 1 hr fuel moisture content of 5%, on a 40% slope with a 6 mph midflame windspeed will exhibit rates of spread as high as 165 chains /hr (10,890'/hr). Flame lengths up to 6-8 feet are not uncommon. Fuel Model 2 also exhibits high rates of spread. With the same conditions, plus a live fuel moisture of 100%, fuel model 2 has a rate of spread of 60 chains/hr (3,960'/hr) with flame lengths of 8-11 feet. (Note: wildland fire rates of spread are for a steady state fire in a continuous fuel bed)

#### **Preparedness Actions**

Preparedness is the work accomplished prior to fire occurrence to ensure that the appropriate response, as directed by the Fire Management Plan, can be carried out. Preparedness activities include budget planning, equipment acquisition, equipment maintenance, equipment inventory, personnel qualifications, and training. The preparedness objective is to have all Monument personnel, involved with fire, meet 310-1 requirements for their respective fire positions, and have organized from personnel within the Monument and other adjacent agencies a fire management organization to manage all normal fire situations within the Monument.

Preparedness activities are outlined in RM-18 and are covered by normal Monument operating funds and FIREPRO funding

Preparedness efforts are to be accomplished in the time frames outside the normal fire season dates. When periods of high fire danger occur outside the normal fire season dates, the appropriate action will be taken and the CCSSO FMO will be notified by telephone for approval of the preparedness actions.

### **Fire Prevention Activities**

An active fire prevention program will be conducted in conjunction with other agencies to protect human life and property or physical facilities, and prevent damage to cultural resources.

A program of public education regarding potential fire danger will be implemented. Visitor contacts, bulletin board materials, handouts and interpretive programs will be utilized to increase visitor and park neighbor awareness of fire hazards as well as benefits.

It is essential that employees be well informed about fire prevention and the objectives of the Monument's fire management program. Further, employees must be kept informed about changes in existing conditions throughout the fire season.

Trained employees need to relate to the public the beneficial effects of prescribed fires as opposed to unwanted human-caused fires, with emphasis on information, essential to understanding the potential severity of human-caused wildland fires and how to prevent them.

During periods of extreme or prolonged fire danger, fire prevention messages will be included in all interpretive programs. Emergency restrictions regarding fires or area closures may become necessary. Such restrictions, when imposed, will usually be consistent with those implemented by cooperators. The Fire Analysis Committee will recommend to the Superintendent when such restrictions are necessary. The Superintendent will authorize closures.

When prescribed fires are burning in the Monument, signs at the Visitor Center and Monument bulletin boards will be used to supplement visitor contacts. These signs will be used to direct, inform, guide and caution visitors about existing fire conditions and prescribed burn activities.

### **Annual Staff Training Needs**

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). The National Park Service wildland fire qualification system meets or exceeds all NWCG standards. Hagerman Fossil Beds National Monument will conform strictly to the requirements of the NPS wildland fire management qualification and certification system. Red-cards will be mandatory for all personnel engaged in fire suppression or prescribed fire duties.

Training is available annually, from surrounding agencies, for red-carded firefighters for basic wildland fire training refreshers in pump and engine operation, power saws, firefighter safety, fire weather and fire behavior, helicopter safety and park prescribed fire objectives and activities. On-the-job training is encouraged and will be

conducted at the field level. Whenever appropriate, the use of fire qualification task books will be used to document fire experience of trainees. The delegated individual with FMO duties will coordinate the Monument's fire training needs with those of other nearby parks, cooperating agencies, and the SSO.

In addition, during general seasonal orientation, all seasonal personnel will receive instruction in:

- Purpose and objectives of the fire management program.
- Prescribed fire actions conducted and planned.
- Use of fire in vegetation management.
- Public, employee, and firefighter safety during suppression and prescribed fire operations.

The Monument supports the development of individual Incident Command System (ICS) overhead personnel from among qualified and experienced Monument staff for assignment to overhead teams at the local, regional, and national level.

Fire suppression is an arduous duty, red-carded personnel should be allowed time for physical fitness commensurate with the requirements of their red card qualifications. On prescribed fires, personnel may be required to shift from monitoring activities to suppression. Poor physical condition of crewmembers can endanger safety and lives during critical situations.

Personnel performing fire management duties will maintain a high level of physical fitness. This requires successful completion of physical fitness requirements in NPS-57 (Health Fitness Guidelines).

## **Annual Fire Program Outline**

The following outline details fire management program activities for the calendar year for Hagerman Fossil Beds National Monument

### **January**

- a) Permanent employees take physical fitness exams.
- b) Permanent employee's physical fitness scores due.
- c) Update the fire call-out list.
- d) Update fire experience and training records for red carded personnel.
- e) Submit updated red-carded personnel records and physical fitness scores to SSO FMO.
- f) Archive training and experience records of seasonal personnel.

### **February**

- a) Meetings with cooperators; final review and revision of interagency agreements.
- b) Submit proposed revisions of Fire Management Plan to SSO FMO for review and approval.
- c) Check established procedure for utilizing suppression and emergency preparedness accounts with Columbia Cascades System Support Office.
- d) Coordinate emergency dispatch procedures with the SSO FMO.
- e) Inventory fire cache; all tools, equipment, kits and supplies are ready, order needed personal protective equipment and tools.
- f) Semi-annual service of power saws, and other equipment.
- g) Prepare prescriptions and burn plans for prescribed fires.

### **March**

- a) Meeting with state agencies regarding smoke management.
- b) Meeting or discussion with SSO FMO to review plans and current program.
- c) Meeting of Fire Analysis Committee to review approved Fire Management Plan revisions and plan prescribed burn activities.
- d) Meeting with cooperators to review approved Fire Management Plan revisions.
- e) Distribution of Fire Management Plan to cooperators.
- f) Preseason planning completed; all cooperative agreements revised and in effect.
- g) Issue red cards to permanent personnel.
- h) Implement Step-Up Plan; adjust level of readiness in response to fire danger levels.

### **April**

- a) Maintain fire contacts with SSO FMO, nearby agency FMO=s, and cooperators.
- b) Continue planning for prescribed fire program.

**May**

- a) Maintain fire contacts with SSO FMO, nearby agency FMO=s, and cooperators.
- b) Continue planning for prescribed fire program.
- c) Draft FIREPRO budget request and submit to Region.
- d) Probable beginning of fire season.

**June**

- a) Physical fitness testing for seasonal personnel.
- b) Issue personal protective equipment to seasonal personnel, if necessary.
- c) Issue red-cards to seasonal personnel.
- d) Issue updated fire call-out list to the SSO FMO.

**July**

- a) Conduct semi-annual service of power saws and other fire equipment.

**September**

- a) Probable end of fire season.

**October**

- a) Review Interagency Agreements, draft revisions as necessary, and submit to the Superintendent for approval.

**November**

- a) Inventory fire cache and requisition replacement equipment and supplies to maintain approved levels.
- b) Submit proposals for annual training to Superintendent for review.
- a) Forward nominations for interagency fire training to the SSO FMO.

**December**

- a) Meetings of Fire Analysis Committee to review fire season and formulate program changes.
- b) Compile Fire Atlas for completed season from fire log; prepare annual summary report.
- c) Forward outstanding fire reports to Region.

**Step-up Staffing Plan**

This staffing assessment will be used in the event of any fire and carry over to prescribed burns. The Prescribed Burn Plan, ICS-214 Unit Log, or Case Incident Report will serve as record of decision for documenting appropriate action taken on fires. This could include allowing prescribed burns to continue to burn if within prescription, or a decision for suppression. Available personnel/resources, fire situation, and predicted fire behavior will determine the response level to maintaining, or curtailing normal Monument operations. Minimum staffing levels

will be considered annually in the Fire Management Plan and the Prescribed Burn Plan to prevent over-extension on out-of-Monument call-out commitments for overhead positions and crew personnel. Table 2 identifies the Preparedness Levels for Hagerman Fossil Beds National Monument. Preparedness Levels (Staffing Class) will be determined by the Southern Idaho Interagency Dispatch Center based on the Burning Index as derived from the Rock Lake RAWS Station (# 103403)

**Table 2. Preparedness Levels for Hagerman Fossil Beds National Monument.**

Prepared. Level	Procedures
I BI (0-20)	No activity necessary. Normal eight (8) hour tours of duty. Red-carded employees are available to respond and take necessary action on any fire reported.
II BI (21-40)	Normal eight (8) hour tours of duty. Fire equipment and supplies serviced and prepared for use.
III BI (41-60)	Normal eight (8) hour tours of duty. Monument is totally prepared to respond to a fire. All relevant personnel know locations of red-carded personnel. Red-carded personnel have fire tools and personal protective equipment immediately available in their work vehicles or at their work site.
IV BI (61-80)	All activities in Readiness Class III are continued. Approval for expenditure of PWE-381 funds is obtained from the SSO FMO. The Superintendent is notified of conditions. Tours of duty may be extended to 7 days per week, ten (10) hours per day. Increased prevention and detection patrols are conducted. A minimum of two (2) red-carded firefighters are available during the burning period (to at least 1800 hours). Longer hours of coverage are initiated for certain key positions (FMO, lead maintenance worker). Lieu days and leave may be canceled for red-carded firefighters. Cooperatives are contacted and activities coordinated (federal, state and county fire departments) in an effort to provide consistent information to the public and Monument neighbors. High Fire Danger notices will be posted in Visitor Centers and at site bulletin boards.
V&VI BI (81+)	All activities in Readiness Class IV are continued. Restrictions and closures of Monument areas may be deemed necessary. Interpretive activities will include a fire safety message.

#### **Pre-Attack Plan**

A pre-attack planning checklist is included in Appendix J.

#### **Minimum Impact Suppression Tactics (MIST)**

Minimum impact fire suppression tactics will be utilized for all suppression and prescribed fire operations at HAFO. The objective for their use is to minimize long-term fire suppression impacts, while still keeping the safety of personnel and the public as a high priority. A list of MIST guidelines for HAFO is in Appendix R.

### **Burned Area Rehabilitation**

All suppression activities will be carried out in a manner causing the least amount of resource damage, with safety of personnel and the public the number one priority. After the fire is extinguished, all litter and trash will be removed. All firelines will be rehabilitated to standards developed for the burn. The severity of the burn will determine if reseeding or planting plugs of native flora is necessary. If there are unacceptable short-term risks that need to be mitigated then a burned area emergency rehabilitation (BAER) plan will be developed. BAER actions will be initiated when the fire effects or suppression effects of a wildland fire in HAFO can cause unacceptable resource degradation or threats to life and property. A BAER plan will be completed and forwarded for Regional Office review within five working days of the control of a wildland fire. BAER activities, procedures and reports will be completed as recommended in Wildland Fire Management RM-18, Burned Area Emergency Rehabilitation Chapter 12.

### **Fire Program Documentation:**

#### **a) Wildland Fire Implementation Plan (WFIP)**

A wildland fire implementation plan will be prepared for every wildland fire and will be the responsibility of the FMO or Collateral Duty FMO to have completed.

#### **b) Individual Fire Reports (DI-1202) (Appendix M)**

The basic report for documenting a wildland fire is the Individual Fire Report (DI-1202). The report is valuable as it provides an historical record of the fire regime for the Monument. As such, it is important that all fires that occur within the boundaries be documented using, at a minimum, this form. This includes fires that go out on their own when the location can be documented. The DI-1202 is the basic document used by the Boise Interagency Fire Center to document a fire occurrence. Incidents known as Support Actions where monument personnel respond to fires outside the Monument (including out of state) are reported on this form. It is impossible for an individual to receive credit for jobs performed on any fire unless NIFC has a record of that fire from the Monument in the form of a DI-1202 and its attached Fire Number.

The Incident Commander for the fire is the person responsible for preparation of the Individual Fire Report. In most cases, this is the individual who put the fire out. That person may also want to complete a Case Incident Report (Form 10-343) for the fire but that would be in addition to the DI-1202. Fires will be sequentially assigned a fire number by calendar year; i.e. fires in 1989 are numbered 8901, 8902, etc.

A complete fire report will include the following attachments, if applicable:

- Any written policies, guidelines or authority statements signed by the Superintendent.

- Copy of the WFIP
- Copies of equipment purchased or personnel request orders.
- All situation maps.
- Personnel lists (including Emergency Time slips.)
- Press clippings.
- Accident reports.
- All weather data reports and records.
- Documentation of financial charges made against the assigned PMP.

The report is then submitted, in draft, to the Resource Management Specialist. Instructions for filling out the report are found in RM-18. That person will review the report for completeness. He/she will then enter the data into the Monument database for permanent record keeping. That procedure also prepares a final draft of the form for the files. The information will also be entered into the Wildland Fire Management Computer System. Finally, a copy of the DI-1202 will be sent to the CCSO Fire Management Officer for that person's records.

### **Fire Experience and Qualifications**

The Wildland Fire Management Computer System at NIFC is the central repository for all individual fire experience and training records. The Resource Management Specialist is the person responsible for entering all training and experience into the computer and ensuring the information is up to date.

### **Reports**

#### **a) Daily Situation Reports**

These reports are required on those days when the Burning Index reaches the 90th percentile and the Monument moves into Staging Class IV and V or when a fire has occurred or is on going. The Resource Management Specialist is responsible for the preparation of the report and entering it into the Wildland Fire Management Computer System by 9:30 a.m.

#### **b) Smoke Management Reports**

Smoke Management reports will be made by the Unit Fire Manager as agreed to in the MOU with the State of Idaho and Federal Agencies.

**c) Report of Fire**

When a report of a fire is received, the following information should be collected from the reporting party:

- a) Name of reporting party
- b) Address
- c) Phone number
- d) Location of fire and extent
- e) If fire is reported in person, ask if the reporting party is willing to show the investigating ranger the location, otherwise, determine if the person can be re-contacted if there are additional questions.

**d) Resource Order Form, NFES 1470**

All assistance requests must be documented on the Resource Order Form, NFES 1470. These forms are designed to be transmitted verbally over the telephone. The order form is, in essence, an obligating procurement document.

Whenever an out-of-park incident management team is ordered, the Superintendent must provide a written limited delegation of authority and a briefing package to the incoming Incident Commander. See RM-18.

**e) Year-end Accomplishment**

Completions of year-end accomplishment reports are the responsibility of the person with HAFO collateral FMO or FMO duties.

**Supplies and Equipment**

A fire cache is maintained within the Monument commensurate with resource values at risk. The fire cache is located at the Preparation Lab site. A list of fire cache items is found in Appendix F. Each cache contains hand tools, firefighter line packs, project fire packs, and personal protective equipment. In addition, each cache contains backpack pumps, hose and appliances, fusees, and wildland fire engines or slip-on pumps. The delegated individual with FMO duties is responsible for inventorying, resupplying and stocking cache items prior to the onset of the fire seasons or prescribed burns.

Additional equipment and supplies are available through cooperators and the interagency cache system. Requests for additional personnel and equipment are made through the Dispatch organization.

**Cooperators**

Hagerman Fossil Beds National Monument currently benefits from the Cooperative Fire Protection Agreement signed between the Bureau of Land Management, the National Park Service, Bureau of Indian Affairs, US Fish and Wildlife Service, US Forest Service, and the State of Idaho Department of Lands (Appendix H). The Monument also has informal agreements for fire protection with the city of

Hagerman. These cooperative relationships are fundamental to the success of the fire program and must continue to receive emphasis. An effort will be made to put informal agreements in writing under Memoranda of Understanding.

In general, Shoshone BLM or city/county fire departments usually assist with initial attack on Monument fires. Interagency overhead teams may be called upon to manage or assist the Monument with initial attack; project fires or monitoring prescribed burns. The Monument subscribes to the “closest forces concept”, and all contingency plans are jointly formulated at the regional level.

The collateral duty FMO is responsible for ensuring that interagency agreements are reviewed annually and will schedule preseason meetings with cooperators as required.

### **Detection**

The Monument relies on fire reports from visitors, Monument employees, Monument neighbors, and other agencies. Private and commercial pilots on aerial overflights may also provide detection of smokes.

Visitors, adjacent landowners, and permittees can be expected to notify local agencies with fire suppression responsibilities. Many fires would be reported through the local 911 emergency system.

The Fire Management Plan does not discriminate between human-caused and lightning caused fire. All non-management-ignited fires will be suppressed. However, detection shall include a determination of fire cause. Moreover, human-caused fires will require an investigation and report by law enforcement personnel. For serious human-caused fires, including those involving loss of life, a qualified arson investigator will be requested.

### **Communications**

The Collateral Duty FMO’s office is the center for all in-park communications. An emergency 911 telephone exchange is operational for alerting cooperating fire suppression agencies, local county fire departments, police, and emergency medical services.

All fires will be reported to the Collateral Duty FMO or delegated individual during the FMO’s absences and the Southern Idaho Interagency Dispatch Center. The FMO will maintain a radio log of the fire, begin a fire report, and handle requests for outside assistance and resource order forms. The FMO will assure that a daily situation report is posted on the WFMCS system at the regional office (telephone notification to the SSO FMO is acceptable); that fire weather data is entered; and that the national situation report and fire weather forecasts are collected.

If red-carded personnel on the scene can control the fire, they will be dispatched and the Collateral Duty FMO notified. Initial attack assistance can be requested from Southern Idaho Interagency Dispatch Center or local city/county fire departments. In brief, the principal of closest forces will guide dispatching, both within the Monument and in its relationship to cooperators.

The Collateral Duty FMO (or Incident Commander) will request outside resources, if needed, through the Southern Idaho Interagency Dispatch Center. For any fire requiring outside assistance, or that involves special circumstances, the SSO FMO will be notified. No requests for assistance will be made directly to the National Interagency Fire Center (NIFC).

The FMO will maintain a roster of people in the park with red-cards. During Readiness Class IV the FMO will know the whereabouts of red-carded employees for possible call-out. Appendix G lists park personnel fire qualifications.

### **Initial Attack**

Upon discovery of a fire, all subsequent actions will be based on the following:

- a) Park personnel will locate, size-up, and initiate requests for suppression actions through established MOUs with cooperating agencies.
- b) Provide for public safety.
- c) Considering the current and predicted fire conditions, the Incident Commander, as determined through his/her assignment to the fire by the Southern Idaho Dispatch Center, will assess the need for additional suppression resources and estimate the final size of the fire. The potential for spread outside of the park should be predicted, as well as the total suppression force required to initiate effective containment action at the beginning of each burning period.
- d) The Incident Commander will assess the need for law enforcement personnel for traffic control, investigations, evacuations, etc. and make the request to the Collateral Duty FMO.
- e) Document decisions and complete the fire report (DI-1202).
- f) The Superintendent makes all final decisions on the fire. However, should a wildland fire move into an extended attack a Delegation of Authority will be invoked. Once a Delegation of Authority has been authorized the Incident Commander will make the final decisions pertaining to the fire. A copy of Delegation of Authority is in Appendix K.

**Fire Investigation**

Fire management personnel will attempt to locate and protect the probable point of origin and record pertinent information required determining fire cause. They will be alert for possible evidence, protect the scene and report findings to the fireline supervisor.

Prompt and efficient investigation of all suspicious fires will be carried out. However, fire management personnel should not question suspects or pursue the fire investigation unless they are currently law enforcement commission qualified.

Personnel and services of other agencies may be utilized to investigate wildland fire arson or fire incidents involving structures.

Information obtained will be documented on a Case Incident form 10-343. Evidence discovered will be protected and left in place until an investigator can collect it properly.

**Extended Attack**

In accordance with RM-18, wildland fires will be suppressed “in a prompt, safe, aggressive, and cost-effective manner to produce fast, efficient action with minimum damage to resources.” Suppression involves a range of possible actions from initial attack to final suppression. All fires not management-ignited will be considered wildland fires and will be suppressed.

Personnel and equipment must be efficiently organized to suppress fire effectively and safely. To this end, the FMO assumes the command function on major or multiple fire situations, setting priorities for the use of available resources and establishing a suppression organization.

There will be only one Incident Commander responsible through the Monument Collateral Duty FMO to the Superintendent. The Incident Commander will designate all overhead positions on fires requiring extended attack. Reference should be made to a Delegation of Authority (Appendix K) required by RM-18.

**Suppression Conditions**

Fast burning brush and grasses, topography, cross-country travel, logistical support, and protection of the cultural and paleontological resources of the Monument are concerns, which increase the difficulty of suppressing fires in the Monument. Ground forces with hand tools and engines are the primary suppression method, with helicopter support generally coming from the Shoshone BLM. Air tankers generally come from Boise.

Portable pumps, backpack pumps, flappers, rakes, leaf blowers, shovels, pulaskis, and chainsaws may be used with due consideration for cultural resource values. Limitations have been placed on the types of mechanized equipment, which may be used in the Monument. Disturbance of mineral soils will be minimized. Refer to Appendix F for a list of Monument fire equipment.

Natural, man-made (roads, trails, etc.) and constructed firelines are usually available as anchor points and may also be utilized with or without improvements as indirect firelines. Hazardous conditions can be created when large amounts of fuel are left in unburned “islands” between the fire and indirect control lines and “Cold Trailing”, where possible, is preferred.

Water sources are not locally abundant. However, portable pumps and complex hose lays can be used in lieu of or to supplement constructed firelines. Engines are utilized whenever possible. These units are designed to be self-contained and can supply water. However, attention must be made to the soil conditions before traveling off-road to prevent displacement of the soils.

Complete mop-up and patrol should be methodically planned and executed in control situations.

No tractor plows or cat lines will be used in suppressing fires on Monument lands.

Air tanker drops will utilize water when practicable; use of chemical retardants will be minimized. **First load drops may require accepting chemical retardant drops, due to the difficulty of off-loading planes loaded with retardant, but ensuing drops should be water.**

#### **Wildland Fire Situation Analysis (WFSa)**

For fires that resist initial suppression action or resist an extended attack, a WFSa must be prepared as shown in Appendix N. In most cases, the Collateral Duty FMO will be responsible for submitting the WFSa. In the case of a wildland fire, the Incident Commander, in conjunction with the FMO, will prepare the WFSa. Approval of the WFSa resides with the Superintendent.

The purpose of the WFSa is to allow for a consideration of alternatives by which a fire may be controlled. Damages from the fire, suppression costs, safety, and the probable character of suppression actions are all-important considerations (Seaver and others 1983).

Public safety will require coordination between the FMO, Unit Manager, and lead interpretive personnel. Notices should be posted to warn visitors, trails may be closed, traffic control will be necessary where smoke crosses roads, etc. Where wildland fires cross roads, the burned area adjacent to the road should be mopped up.

All wildland fires within the Monument will be patrolled and secured as long as there is visible smoke within control lines. Every attempt will be made to utilize natural and constructed barriers, including changing fuel complexes, in the control of wildland fire. Rehabilitation efforts will concentrate on the damages done by suppression activities rather than on the burned area itself.

### **Aircraft Operations**

Because Hagerman Fossil Beds National Monument has a high ratio of perimeter to acreage and fast fire spreading character fuels, the use of aircraft in fire management operations should be considered. Aircraft may be used in all phases of fire management operations. All aircraft must be Office of Aircraft Services (OAS)/Forest Service approved.

Helicopters may be used for reconnaissance, bucket drops and transportation of personnel and equipment. The Snake River provides a close-proximity source of water. Natural heli-spots and parking lots are readily available in most cases. Clearing for new heli-spots should be avoided. Improved heli-spots will be rehabilitated following the fire.

As in all fire management activities, safety is a primary consideration. Qualified aviation personnel will be assigned to all flight operations.

### **Rehabilitation**

When suppression action is taken, rehabilitation is appropriate.

The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression techniques.

Rehabilitation will be initiated by the Incident Commander or the Monument Integrated Resource Program Manager. Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire:

- a) Backfill control lines, scarify, and seed.
- b) Install water bars and construct drain dips on control lines to prevent erosion.
- c) Flush cut stumps and camouflage with soil and moss.
- d) Place cut vegetative materials in random positions.

- e) Position felled and bucked material so as to be least noticeable to visitors and camouflage where possible.
- f) Restore natural ground contours.
- g) Remove all flagging, equipment and litter.
- h) Consider and plan more extensive rehabilitation or revegetation to restore sensitive impacted areas.

If revegetation or seeding is necessary, only native plant species will be utilized, and the Natural Resource Program Manager will be consulted for approval of the species chosen.

If emergency rehabilitation measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the Monument can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The BAER fund is administered through the NPS representative at the National Interagency Fire Center and national BAER team leader.

Rehabilitation plans for each fire will be formulated by the Natural Resource Program Manager, subject to review by the Fire Analysis Committee. A final plan will be submitted to Region for establishing an account. Rehabilitation should be initiated prior to complete demobilization or early the following season.

## **PRESCRIBED FIRE PROGRAM**

At this time there will not be an active prescribed fire program at HAFO. There will be further analysis of the role that prescribed fire can play within monument boundaries. The Chief Ranger, with the assistance of subject matter experts, will be responsible for developing the analysis needed to institute a prescribed fire program at HAFO, with the needed development of resource management objectives for using fire as a management tool on the landscape. This analysis will occur within five years of the signing of the fire management plan.

### **Prescribed Burn Program Objectives**

Fire history research indicates that much of the natural community mosaics found throughout the mountain states are a result of periodic fires (Fischer and Clayton 1983, Gruell 1983).

Future analysis may show that prescribed fire may be used for restoring and maintaining natural conditions and processes at Hagerman Fossil Beds National Monument. National Park Service policy permits the use of prescribed fire to attain specified resource management objectives.

“In some cases management ignited prescribed fire with conservative prescriptions may be needed to restore an area to a natural range of conditions. Management ignited prescribed fires may also be used to attain other resource objectives such as restoring or maintaining historic settings, maintaining open scenes, and reducing hazardous fuel accumulations.” NPS Management Policies (1988)

The goals of prescribed fire in the Monument are to perpetuate the natural role of fire in the ecosystem under managed conditions, to reduce hazard fuel accumulations, aid in the reduction of noxious plants and to aid in the maintenance of cultural landscapes. Fire management projects will be designed to minimize impacts to the air quality resources of the monument and will incorporate current air quality control processes as determined by the State of Idaho SIP and regional haze agreements. Specific management prescribed fire projects will be determined in the future for the Monument as a whole and for specific areas. The Monument's ecosystems are dynamic and ecosystem responses to management actions must be monitored to determine additional management needs. Specific burn objectives, fire frequency rotation, firing methodology and prescriptions will vary from year to year. Burn plans will be updated to reflect any variations. The Superintendent will approve management ignited prescribed fire plans.

Future prescribed fires involve the use of fire as a tool to achieve management objectives as stated in the Resource Management Plan and validated by further

analysis. Research burning may also be conducted when determined to be necessary for accomplishment of research project objectives. Actions included in the prescribed burn program include: the Monument's selection and prioritization of prescribed burns to be carried out during the year, prescribed burn plans, burn prescriptions, burn operations, documentation and reporting, and burn critiques. The following measures will ensure the successful implementation of the prescribed fire program:

- 1) Conduct a vigorous prescribed fire program with the highest professional and technological standards.
- 2) Identify the prescribed burn type most appropriate to specific situations and areas with due consideration of the impacts of the project on monument air quality related values and regional haze.
- 3) Efficiently accomplish resource management objectives through the application of prescribed fire.
- 4) Continually evaluate the prescribed fire program to better meet program goals by refining prescription treatments and monitoring methods, and by integrating applicable technical and scientific advancements.
- 5) Prepare prescribed burn plans with a review by a qualified Prescribed Fire Manager/Prescribed Burn Boss, and approval by the Monument Superintendent.
- 6) Conduct prescribed burns with an adequate number of qualified personnel to conduct the burn as well as for mop-up.

The Monument reserves the option to utilize an interagency team approach for complex burns carried out on the boundaries and close to developed areas or burns of large acreage. The most highly qualified and experienced personnel in the regional interagency community would be requested to serve on this team.

If future analysis deems it appropriate, prescribed burning may be used at Hagerman Fossil Beds National Monument to achieve resource management objectives as outlined in this plan. The Fire Analysis Committee will prepare the annual prescribed burn program. The program will detail all planned burns to be conducted and specify objectives to be accomplished. The FMO will review and submit this program plan to the Superintendent for approval.

The Fire Analysis Committee will acquire a Prescribed Burn Boss for each planned burn. The Prescribed Burn Boss will conduct a field reconnaissance of the proposed burn location with members of the FMO to discuss objectives, special concerns, and gather all necessary information to write the burn plan. After completing the reconnaissance, the Prescribed Burn Boss, and FMO/Natural Resource Program

Manager will write the prescribed burn plan.

### **Prescribed Burn Plans**

All prescribed fires will have prescribed burn plans. The prescribed burn plan is a site specific action plan describing the purpose, objectives, prescription, and operational procedures needed to prepare and safely conduct the burn. The treatment area, objectives, constraints, and alternatives will be clearly outlined. No burn will be initiated unless all prescriptions of the plan are met. Fires not within those parameters will be suppressed. Prescribed Burn Plans will follow the format contained in Appendix L. Execution of the prescribed burns will be by qualified personnel. The term burn unit refers to a specific tract of land to which a prescribed burn plan applies.

### **Prescribed Burn Management Unit Objectives**

Future analysis may show objectives of prescribed burning at Hagerman Fossil Beds National Monument will be to manage vegetation/wildlife habitat, and reduce fuel loading while protecting and preserving the cultural resources and historic landscapes of the Monument. The purpose of fuels management is to complement the fire management program by reducing fire hazards, decreasing the potential damage to Monument resources and outside lands, and minimizing risks to employees, residents and visitors.

Potential types of prescribed burn units are described in Appendix P.

General prescribed fire objectives will be to:

- 1) Reduce fuel accumulations.
- 2) Manage vegetation to promote the growth of native species, and control encroachment of exotic species.
- 3) Assist with the maintenance of the historic scene.

Fire Management Plan calls for full suppression of all wildland fires, both natural and human-caused. Any prescribed fire outside prescription will be designated a wildland fire and will be immediately suppressed.

### **Prescribed Burn Strategies**

Upon initiating a prescribed burn program, the Fire Analysis Committee will designate a qualified Prescribed Burn Boss and other necessary burn team members, depending upon complexity, to conduct the prescribed burn. Hagerman Fossil Beds National Monument will maintain qualified personnel; to assist with planned prescribed burns, through training, burn experience, and recruitment. Hagerman

Fossil Beds National Monument will participate with nearby parks and sister agencies in a coordinated approach to mutual prescribed fire programs. Some parks and agencies include Shoshone BLM, Malad Gorge State Park, Billingsly Creek State Wildlife Management Area and the Hagerman State Wildlife Management Area.

The Prescribed Burn Boss will fill all required positions to conduct the burn with qualified personnel including Firing Boss, Holding Boss, and Ignition Boss. All personnel listed in the burn plan must be available for the duration of the burn or the burn will not be initiated.

Weather and fuel moisture conditions must be monitored closely in planned burn units to determine when the prescription criteria are met. A belt weather kit may also be utilized to augment monitoring. Weather data will be gathered at least 30 days prior to conducting the burn so accurate calculations of the 100 hour timelag fuel moisture, energy release component, ignition component, spread component, and burning index can be obtained. Fuel moisture samples of 10, 100 hour fuels and of live plants will be monitored each week and percent moisture contents figured to help determine when the prescription criteria are met.

When all prescription criteria are within the acceptable range, the Prescribed Burn Boss will select an ignition date based on current and predicted weather forecasts. All personnel and equipment will be assembled one day prior to the planned ignition date. The Prescribed Burn Boss will give a thorough briefing and specific assignments and placement of personnel will be discussed. An updated spot weather forecast will be obtained on the day of ignition and all prescription elements will be rechecked to determine if all elements are still within the approved ranges. If all prescription elements are met, a test fire will be ignited to determine on-site fire behavior conditions as affected by current weather. If conditions are not satisfactory, the test fire will be suppressed and the burn will be rescheduled. If conditions are satisfactory the burn will continue as planned.

A qualified Incident Commander Type III will be available within a four-hour response in the event of an escaped prescribed burn. If the prescribed burn escapes the predetermined burn area, all further ignitions will be halted and suppression efforts as discussed in the preburn briefing will be initiated. The Monument FMO will be notified immediately of any control actions on a prescribed burn. If the burn exceeds the initial suppression efforts, the burn will be declared a wildland fire and completely suppressed using appropriate techniques. A WFSA will be completed and additional personnel and resources ordered as determined by the Incident Commander. If the fire continues to burn out of control, additional resources will be called from the local cooperating agencies. A management overhead team may be requested to assume command of the fire.

## **Monitoring and Evaluation**

Monitoring of prescribed fires at Hagerman Fossil Beds National Monument is intended to provide information for quantifying and predicting fire behavior and its ecological effects on Monument resources while building a historical record.

Monitoring measures the parameters common to all fires: fuels, topography, weather and fire behavior. In addition, ecological changes such as species composition and structural changes will be monitored for several years after a fire. This information will be very useful in fine-tuning the prescribed burn program.

All wildland fires will be suppressed. Monitoring wildland fires may be appropriate and potentially valuable in mapping and documenting the growth of the fire, measuring on-site weather and fuel loading to provide the FMO with present and expected fire behavior information, as well as providing valuable information for development of future prescriptions for management ignited fires. During prescribed burns, monitoring can serve as a precursor to invoking suppression action by determining if the fire is in prescription, assessing its overall potential, and determining the effects of the prescribed burn.

During prescribed burning, monitoring will include mapping, weather, site and fuel measurements and direct observation of fire characteristics such as flame length, rate of spread and fire intensity. Operational monitoring provides a check to insure that the fire remains in prescription and serves as a basis for evaluation and comparison of management actions in response to measured, changing fire conditions, and changes such as fuel conditions and species composition.

All fires may be monitored regardless of size. The FMO will establish specific fire information guidelines for each fire to update intelligence about the fire. Highest priority for monitoring will be assigned to large fires or fires that threaten to leave the Monument.

The FMO will ensure that assigned qualified personnel are dispatched to monitor fires. Personnel will be dispatched for the length of time there is a need for onsite information on the fire's status. The most efficient utilization of personnel is to match specifically trained monitoring personnel with experienced fire suppression personnel, or in the long- term develop those dual skills with people on the Monument. By being able to suppress the fire, assess its potential, characterize and quantify its effects and determine if it is within prescription, an efficient and flexible monitoring program will result.

Hagerman Fossil Beds National Monument will use the fire monitoring protocols developed by Western Region (NPS 1991) and adapted for use in the Monument as depicted in the HAFO monitoring plan in Appendix O. A copy of the monitoring manual is in the Integrated Resource Program Manager's office.

## **Documentation and Reporting**

All prescribed burn forms will be completed as outlined by the Prescribed Burn Boss. A fire monitor will be assigned to collect all predetermined information and complete all necessary forms prior to, during, and after the burn. All records will be archived in the Monument's fire records for future use and reference.

The Prescribed Burn Boss will prepare a final report on the prescribed burn for the FMO. Information will include a narrative of the burn operation, a determination of whether objectives were met, weather and fire behavior data, map of the burn area, photographs of the burn, number of work hours, and final cost of the burn.

The forms necessary for documenting prescribed burn activities are outlined in RM-18 (Wildland Fire Management Guideline). The Individual Fire Report, DI-1202, as shown in Appendix M, is the responsibility of the Prescribed Burn Boss. The Case Incident Report, 10-343, is also the responsibility of the Prescribed Burn Boss and documents all personnel and equipment costs involved in the burn.

## **Prescribed Burn Critique**

The Fire Analysis Committee will critique each prescribed burn. A report detailing the actual burn will accompany any recommendations or changes deemed necessary in the program. This report will be submitted to the Superintendent. A post-season critique of the fire management program, including the prescribed burn program, will be held each year by the Fire Analysis Committee at the conclusion of the fall fire season.

## **Debris Disposal**

Fire may be used to eliminate various types of debris generated from resource management or maintenance activities, such as brush clipping, pruning, and hazard tree removal, according to the guidelines established in, Section M, Chapter 5, page 10.

Debris burning or maintenance fires will be conducted in accordance with Idaho State open burning laws, reference of which is in Appendix Q.

Debris fires may be conducted by persons without wildland fire qualifications as long as: personnel wear personal protective equipment (hard hat, eye protection, leather gloves, nomex shirt and pants, leather boots); qualified personnel are available to respond as needed; at least one member of the crew is qualified at the firefighter level; the Collateral Duty FMO has notified appropriate agencies (local fire departments), Monument personnel, and neighbors; and developed an appropriate

safety and evacuation plan to enact in case of injuries or other emergencies.

### **WILDLAND FIRE USE PROGRAM**

There will be no “Wildland Fire Use” program at Hagerman Fossil Beds National Monument. All wildland fires will be treated as unwanted wildland fires and suppressed using the appropriate management strategy.

## **AIR QUALITY / SMOKE MANAGEMENT GUIDELINES**

### **Smoke Management Objectives**

Hagerman Fossil Beds National Monument is a Class II air quality area and is in a non-attainment area for ozone. The Fire Management Plan will be in compliance with the Clean Air Act and Idaho emission standards for open burning. Reference to Idaho State SIP guidelines and regional haze is in Appendix Q.

The objectives for smoke management and compliance with the Clean Air Act is similar to those for fire management: to encourage a natural process so long as it does not endanger public health and safety. The Idaho Department of Environmental Quality will set the gross parameters of public health, in addition smoke levels become unacceptable when they impair visibility to such a degree that they detract from visitor enjoyment of the primary Monument resource with emphasis on the vistas of the Monument. Dense smoke within the Monument is generally unacceptable; however, it may be tolerated for short periods if the winds assure good mixing. The Monument will also evaluate the forecasted impact of smoke on local communities and visitor safety. All of these considerations are difficult to quantify, monitor, and evaluate and there will exist considerable room for discretion.

It may be necessary to suppress fires through appropriate suppression action when smoke affects a sensitive area or creates a significant public response. All fire activities may have to be curtailed when an extended inversion or air pollution episode is in effect. Complaints regarding smoke will be documented and communicated to the FMO and Superintendent.

### **Procedures**

The Monument must comply with Idaho State air quality and open burning standards. The Monument will notify the Idaho Department of Lands for proper permits, and at the time of any fire ignition. The FMO will contact the National Weather Service (NWS) for the appropriate area, to verify the smoke management forecast and consult with the State during the initial fire assessment. Thereafter, smoke characteristics will be evaluated daily along with the NWS smoke management forecast during prescribed burns. The FMO will provide Idaho State with relevant field data for all prescribed burns. This will be through the use of appropriate state smoke management forms.

The visibility provisions of air quality regulations are intended to protect areas from human-induced visibility degradation. Prescribed burns can potentially affect visibility and for that reason monitoring is required in Idaho. Prescribed burns will be closely monitored for spread, location, and size to determine visibility impact

conditions. Informational data from air quality monitoring and visibility monitoring will be available for analysis annually. The Monument will coordinate fire specific visibility monitoring. A process will be developed for implementation to determine if adverse impacts to air quality and visibility are occurring for management decisions.

To minimize the effects of smoke the following guidelines will be considered when planning a prescribed burn:

- 1) A detailed smoke vector map will be included in every prescribed burn plan to identify sensitive areas and expected directional flow of smoke;
- 2) Burning will be conducted only when: visibility exceeds 5 miles or when the fire weather forecast indicates the presence of an unstable airmass, afternoon mixing heights are 500 meters or greater, and ventilation rates (mixing height in meters X transport wind speed in meters per second) is 2000 or greater;
- 3) Prescribed burns will not be ignited during air pollution health advisory, alert, warning or emergency, or during temperature inversions;
- 4) Burning will be conducted only when the direction of the wind vector is away from sensitive areas;
- 5) Backing and flanking fires will be used when possible to minimize particulate emissions.
- 6) Stumps, snags, and other hot spots may be mopped-up to reduce residual smoke;
- 7) A fire weather forecast will be obtained for the appropriate zone from the National Weather Service, prior to ignition of the prescribed burn.
- 8) Media and other public affairs offices will be kept informed of fire and smoke dispersal conditions throughout the duration of the project.

## **FIRE RESEARCH AND MONITORING**

Research is a necessary element in the fire management program at Hagerman Fossil Beds National Monument. The primary objective of fire research is to provide information for making fire management decisions. Fire research will be coordinated through the Integrated Resource Program Manager of the Monument. Fire effects research will be conducted regarding vegetation, soil, and plant succession in conjunction with a hazard fuel removal project. This research will be analyzed and used in the decision making process regarding fire management.

As the Monument's Fire Management Plan is implemented and tested, additional research will inevitably be identified for such purposes as refining prescriptions, improving the understanding of fire behavior and fire effects, refining monitoring protocols, defining fire return cycles, describing fuels dynamics, describing the impacts on cultural resources, and other information needed for operational fire and resource management.

Monitoring will be a part of all prescribed burns conducted in the Monument. Monitoring programs will be designed to define the effectiveness of the fire management program by assessing fire effects on site vegetation. The Monument will use the monitoring protocols developed by the Pacific West Region.

## **PUBLIC SAFETY**

Hagerman Fossil Beds National Monument is dedicated to ensuring the safety of each visitor and to all residents and property adjacent to the Monument's boundary with regards to its fire management program. The Superintendent or Unit Manager may close all or portions of the Monument (including roads and trails) when wildland fire or a prescribed burn pose an imminent threat to public safety. A prescribed burn that exceeds prescription or extends beyond the predetermined area will be immediately suppressed. Any prescribed burn that is determined to pose a threat after ignition will be immediately suppressed.

The Monument will implement a notification system to inform visitors of all fire activity through normal communication channels. A fire activity report will be updated, as significant changes occur to inform Monument personnel of potential fire threat. Areas of fire activity will be clearly signed at visitor centers and Monument bulletin boards. Residents adjacent to the Monument will be notified in advance of any prescribed burn and if any fire poses a threat to burn outside the monument's boundaries through appropriate Monument personnel.

During prescribed burns at least one burn team member will be currently qualified as an emergency medical technician. A first aid kit will be on-site for prescribed burns as well as wildland fires. The local police, fire, and emergency medical services will be notified prior to the ignition of any prescribed burn. They will also be notified of the location of any wildland fires in the event that their expertise is required.

## **PUBLIC INFORMATION AND EDUCATION**

Information and education are important processes in public acceptance of the managed fire program at Hagerman Fossil Beds National Monument. The Unit Manager will coordinate all public information activities with the assistance of the interpretive personnel of the site. The FMO will provide accurate information regarding current fire situations and management activities.

The public information program will be developed as follows:

1. Concepts of the prescribed burn program will be incorporated, as appropriate, in Monument publications, brochures, and handouts.
2. During periods when prescribed burns are ignited, handouts will be prepared and distributed to all visitors entering areas of fire activity.
3. The fire management program will be incorporated into visitor contacts, interpretive talks, walks, and tour programs. Particular attention will be given when fires are conspicuous from roads or visitor use areas.
4. News releases will be distributed to the media as appropriate.
5. The public information outlets of neighboring and cooperating agencies and the regional office will be provided with all fire management information.
6. The role of the fire management program at Hagerman Fossil Beds National Monument will be developed and discussed, as appropriate, in off-site programs and talks.
7. The fire management program will be discussed in informal talks with employees of all divisions, concessionaires, contractors, volunteers, residents, and Monument neighbors.

As outlined in the prevention section, emergency closures or restrictions may become necessary during periods of extreme or extended fire danger.

## **ARCHEOLOGICAL, CULTURAL, AND HISTORIC RESOURCES**

Fire management in the Monument will be consistent with the objective to identify, evaluate, protect and preserve the Monument's, paleontological, archeological and historical resources.

There has been extensive paleontological work completed at Hagerman Fossil Beds National Monument, however the potential exists for significant resources to be uncovered during activities that disturb the mineral soils of the Monument. One of the objectives of this fire program is to preserve and protect the natural and cultural resources of the Monument. Therefore, there will be little or no soil disturbance associated with fire suppression or prescribed burn activities.

Fire intensity, duration of heat, heat penetration into the soil, and the use of mechanized equipment for suppression are the primary sources of damage to archeological resources (Anderson 1985). To prevent needless or excessive damage, archeologists or historians will be consulted during the early planning stages of prescribed fires. The following guidelines which will be adopted by Hagerman Fossil Beds National Monument whenever possible for any fire:

1. Resource base maps showing archeological and cultural site locations will be given to archeologists and incident commanders on the firelines during project fires or when fires are near known archeological or cultural sites.
2. When a fire threatens numerous cultural resources, archeologists will be ordered through SIIDC to help mitigate fire suppression or rehabilitation impacts on those resources.
3. Priority will be given to monitoring mechanized equipment, when used, through all aspects of fire suppression and rehabilitation.
4. When possible, archeologists on the fire will hold a current red card and carry standard firefighting safety equipment.
5. Special flagging will be used to identify known archeological or historic sites.
6. A photographic record will be kept of all fire suppression in archeological areas and of all archeological activity.
7. A liaison officer will coordinate all activities of the archeologists with the incident commander.
8. A pre-season paleontological orientation by park personnel with local initial attack suppression forces should occur as part of their yearly orientation

## **FIRE CRITIQUES AND ANNUAL PLAN REVIEW**

### **Fire Critiques**

Fire reviews will be conducted in accordance with RM-18. Each review will be documented and filed with the final fire report. The FMO will retain a copy for the Monument's files.

### **Annual Fire Summary Report**

The Chief Ranger will be responsible for completing an annual fire summary report. The report will contain the number of fires by type, acres burned by fuel type, cost summary (prescribed burns and wildland fires), personnel utilized, and fire effects.

### **Annual Fire Management Plan Review**

The Fire Management Plan will be reviewed annually by the Fire Analysis Committee. Necessary updates or changes will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the FMO to determine if such alterations warrant a re-approval of the plan.

## **CONSULTATION AND COORDINATION**

The following agencies, organizations and/or individuals were consulted in preparing this plan:

Erv Gasser, Burned Area Emergency Rehabilitation Team Leader, Columbia Cascades SSO, National Park Service, Seattle, WA

Ken Till, Fire Management Officer, Columbia Cascades SSO, National Park Service, Seattle, WA

Bob Willhite, Chief Ranger, Hagerman Fossil Beds National Monument, Hagerman Idaho.

Sherri Kovach, Idaho Department of Health and Safety, Boise, Idaho

Andy Payne, Fire Management Officer, BLM Shoshone District, Shoshone, Idaho.

Amanda McAdams, Prescribed Fire Specialist, John Day Fossil Beds National Monument.

Paul Reeberg, Fire Monitoring Program Specialist, Pacific West Regional Office, National Park Service, San Francisco, CA.

Southern Idaho Interagency Dispatch Center, Shoshone, Idaho

Diane Riley, Idaho State Department of Environmental Quality, Boise, Idaho

David Minaglia, Fire Program Assistant, Pacific West Regional Office, San Francisco, CA.

Neil King, Superintendent, Hagerman Fossil Beds National Monument, Hagerman Idaho.

## **Appendix A (References)**

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## **Appendix B (Definitions)**

## Definitions

**Appropriate Suppression.** Selecting and implementing a prudent suppression option to avoid unacceptable impacts and provide for cost-effective action.

**Class of Fire** (as to size of wildland fires):

Class A - 3 acre or less.

Class B - more than 3 but less than 10 acres.

Class C - 10 acres to 100 acres.

Class D - 100 to 300 acres.

Class E - 300 to 1,000 acres.

Class F - 1,000 to 5,000 acres.

Class G - 5,000 acres or more.

**Energy Release Component (ERC)** A number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. It is generated by the National Fire Danger Rating System, a computer model of fire weather and its effect on fuels. The ERC incorporates thousand hour dead fuel moistures and live fuel moistures; day to day variations are caused by changes in the moisture content of the various fuel classes. The ERC is derived from predictions of (1) the rate of heat release per unit area during flaming combustion and (2) the duration of flaming.

**Wildland Fire Situation Analysis (WFSA)**. A decision making process that evaluates alternative management strategies against selected environmental, social, political and economic criteria.

**Extended attack.** A fire on which initial attack forces are reinforced by additional forces.

**Fire management.** All activities related to the prudent management of people and equipment to prevent or suppress wildland fire and to use fire under prescribed conditions to achieve land and resource management objectives.

**Fire effects.** Any consequences to the vegetation or the environment resulting from fire, whether neutral, detrimental, or beneficial.

**Fire intensity.** The amount of heat produced by a fire. Usually compared by reference to the length of the flames.

**Fire prescription.** A written direction for the use of fire to treat a specific piece of land, including limits and conditions of temperature, humidity, wind direction and speed, fuel moisture, soil moisture, etc., under which a fire will be allowed to burn, generally expressed as acceptable range of the various fire-related indices, and the limit of the area

to be burned.

**Fuels.** Materials that are burned in a fire; primarily grass, surface litter, duff, logs, stumps, brush, foliage, and live trees.

**Fuel loadings.** Amount of burnable fuel on a site, usually given as tons/acre.

**Hazard fuels.** Those vegetative fuels which, when ignited, threaten public safety, structures and facilities, cultural resources, natural resources, natural processes, or to permit the spread of wildland fires across administrative boundaries except as authorized by agreement.

**Maintenance burn.** A fire set by agency personnel to remove debris; i.e., leaves from drainage ditches or cuttings from tree pruning. Such a fire does not have a resource management objective.

**Natural fire.** A fire of natural origin, caused by lightning or volcanic activity.

**NFDRS Fuel Model.** One of 20 mathematical models used by the National Fire Danger Rating System to predict fire danger. The models were developed by the US Forest Service and are general in nature rather than site specific.

**NFFL Fuel Model.** One of 13 mathematical models used to predict fire behavior within the conditions of their validity. The models were developed by US Forest Service personnel at the Northern Forest Fire Laboratory, Missoula, Montana.

**Prescribed fire.** A fire ignited by agency personnel in accord with an approved plan and under prescribed conditions, designed to achieve measurable resource management objectives. Such a fire is designed to produce the intensities and rates of spread needed to achieve one or more planned benefits to natural resources as defined in objectives. Its purpose is to employ fire scientifically to realize maximize net benefits at minimum impact and acceptable cost.

**Unplanned ignition.** A natural fire that is permitted to burn under specific conditions, in certain locations, to achieve defined resource objectives.

**Preparedness.** Actions taken seasonally in preparation to suppress wildland fires, consisting of hiring and training personnel, making ready vehicles, equipment, and facilities, acquiring supplies, and updating agreements and contracts.

**Prevention** Activities directed at reducing the number or the intensity of fires that occur, primarily by reducing the risk of human-caused fires.

**Rehabilitation** (1) Actions to limit the adverse effects of suppression on soils,

watershed, or other values, or (2) actions to mitigate adverse effects of a wildland fire on the vegetation-soil complex, watershed, and other damages.

**Suppression** Actions taken to extinguish or limit the spread of a wildland fire, regardless of the strategies and tactics employed.

**Wildland fire** Any fire that burns wildland vegetation other than a prescribed fire.

**Wildland/urban interface fire** A wildland fire that threatens or involves structures.

**Wildland fire use:** Allowing a wildland fire to be managed for resource benefits.

## **Appendix C (Species List, Studies Listed)**

## Species List

The following Studies contain comprehensive lists of plant and animal species found in the Hagerman area. Many of the studies were associated with an Idaho Power Company project.

### **Plant and Animal Studies in the HAFO Area**

- Sensitive Plant Survey HAFO, Prentice, C. Feb. 1995
- Lichens of Hagerman Fossil Beds National Monument, Idaho, Ryan, B.
- An Investigation of the Herptile Community in Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-L May 1995
- An Investigation of Furbearer Communities in Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-K May 1995
- Wildlife Resources Associated with Line 929 (Bliss Power Plant to Fossil Gulch Tap) in Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-Q May 1995
- An Investigation of Small Mammals in the Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-H May 1995
- An Investigation of Medium-sized Mammals (Lagomorphs) in the Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-I May 1995
- An Investigation of Upland Game Birds in the Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-C May 1995
- An Investigation of Nesting Waterfowl in the Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-F May 1995
- An Investigation of Cliff Nesting Birds of Prey in the Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-D May 1995
- An Investigation of Nongame Bird Communities in the Hagerman Study Area, Holthuijzen, A. Technical Report Appendix E.3.2-A May 1995

## **Appendix D (NEPA/NHPA Compliance)**

**Hagerman Fossil Beds  
Fire Management Plan  
Categorical Exclusion**

It is my determination that the development of the Hagerman Fossil Beds Fire Management Plan meets the requirements under the NPS Department Manual for categorical exclusions (Section: 1.2 -- Plans, Studies and Reports, Subsection: 1.2.10 -- Preparation of internal reports, plans, studies and other documents containing recommendations for action which NPS develops preliminary to the process of preparing a specific Service proposal or set of alternatives for decision.)

The Fire Management Plan's direction for managing wildland fire is for full suppression without wildland fire use and further analysis concerning the use of prescribed fire. This is the same appropriate management response as the historic wildland fire management strategy for Hagerman Fossil Beds National Monument.

Suggested types of prescribed fire projects for Hagerman Fossil Beds National Monument are listed in the Fire Management Plan (Appendix P). Prescribed fire projects have the potential to impact the environment; therefore, proposed prescribed fire projects will have programmatic compliance documents prepared and approved prior to initiation of prescribed fire projects.

In conclusion, the HAFO Fire Management Plan is considered a wildland fire suppression plan initiating further analysis concerning future fire management prescribed fire actions and is not an implementation plan validating future fire management prescribed fire actions.

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Neil King  
Superintendent  
Hagerman Fossil Beds National Monument

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Date:

## **Appendix E (HAFO Emergency Notification List)**

### HAFO Emergency Notification List

Position/ Role	Organization/ Name:	Phone #'s
Wildland Fire Notification	Southern Idaho Interagency Dispatch Center	208-886-7633 or 1-800-974-2373
	BLM Shoshone	886-2206
	Sawtooth National Forest	733-3627
Structure Fire Notification	Bliss Fire Dept.	911
	Buhl Fire Dept.	543-5664
	Gooding Fire Dept.	911
	Hagerman Fire Dept.	911 Non-emergency – 837-4552
	Wendell Fire Dept.	911
Police Hagerman Side	Gooding County Sheriff (Dispatch)	911 or 934-4421
Monument Side	Twin Falls County Sheriff (Dispatch)	911 or 324-1911
	Idaho State Police	736-3060
	INS Border Patrol	734-4362
Ambulance	Hagerman Quick Response Unit	911 or 837-4552
	Gooding County	911 or 934-4015
	Medivac (Air Ambulance – Boise)	1-800-521-2444 or 378-3211
Hospital/Clinic	Gooding County Hospital	934-4433
	Magic Valley Regional Medical Center	737-2000
Poison control	Poison Control Center	1-800-632-8000
PNW CCSO FMO	Till, Ken	206-220-4257
PWR FMO	Nichols, Tom	415-427-1371
Other Contacts	Bell Rapids Mutual Irrigation Co.	837-6241
	Idaho Power Company	388-2200

## **Appendix F (Fire Cache Inventory)**

Hagerman Fossil Beds National Monument  
Inventory November 1996

FIRE TOOLS

9 Shovels  
4 Pulaskis  
4 FEDCO Backpack Pumps  
1 McCloud Rake  
1 Flapper

PERSONAL GEAR

5 Nomex fire shirts  
5 Nomex fire pants  
Gloves  
6 pair medium  
5 pair x-large  
5 hardhats

LARGE GEAR

1952 Vintage Wildland engine with 200 gal slip-on, and support gear

SUPPORT GEAR

7 strap canteens  
500 ft 1 1/2 hose  
18 water bottles  
5 fire shelters (pouch)  
5 line gear  
2 first aid kits (crew)  
7 headlamps

## **Appendix G (HAFO Personnel Fire Qualifications)**

## **HAFO Personnel Fire Qualifications**

Seasonal Ranger

Eric Foemmel

Firefighter Type II

## **Appendix H (Cooperative Agreements)**

Southern Idaho Interagency Dispatch Center

BLM/NPS Annual operating Plan

**SOUTHERN IDAHO INTERAGENCY DISPATCH CENTER  
1999 OPERATING PLAN**

between

**STATE OF IDAHO**

**IDAHO DEPARTMENT OF LANDS**

**IDAHO DEPARTMENT OF PARKS & RECREATION  
MALAD GORGE STATE PARK  
CITY OF ROCKS NATIONAL RESERVE**

**U S DEPARTMENT OF THE INTERIOR**

**NATIONAL PARK SERVICE  
CRATERS OF THE MOON NATIONAL MONUMENT  
HAGERMAN FOSSIL BEDS NATIONAL MONUMENT**

**BUREAU OF LAND MANAGEMENT  
UPPER SNAKE RIVER DISTRICT-SOUTH CENTRAL  
IDAHO FIRE OPERATIONS**

**U S FISH & WILDLIFE SERVICE  
HAGERMAN NATIONAL FISH HATCHERY**

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## 1. INTRODUCTION

This Annual Operating Plan is authorized by the Reciprocal Fire Protection Act of May 27, 1955 ( 42 U.S.C. 1856a), the Cooperative Fire Agreement between the United States Department of the Interior (USDI), Bureau of Land Management (BLM) and the United States Department of Agriculture (USDA), Forest Service (BLM reference number Idaho-174, November 23, 1979); the Cooperative Fire Agreement between the State of Idaho, Department of Lands and the USDA Forest Service, Northern and Intermountain Regions (Agreement number RO-85-COOP Fire-001, March 27, 1984); the Cooperative Fire Agreement between the USDI Fish and Wildlife Service (FWS) and the Regional Forester, USDA Forest Service of Ogden, Utah (Agreement number 22-23, May 18, 1971); and the Cooperative Fire Agreement between the USDI BLM and the State of Idaho (Agreement No. 11-910-CT4-1, August 9, 1973). This Operating Plan will become effective when signed in 1999.

The purpose of this plan is to coordinate the wildland fire, aviation and logistical functions of the State of Idaho, Department of Lands and Department of Parks & Recreation {Malad Gorge State Park and City of Rocks National Reserve}; U. S. Department of the Interior, National Park Service {Craters of the Moon National Monument and Hagerman Fossil Beds National Monument} and the Bureau of Land Management {South Central Idaho Fire Operations} ; U. S. Fish & Wildlife Service, Hagerman National Fish Hatchery (hereafter called Units). The Southern Idaho Interagency Dispatch Center (SIIDC) is designed to dispatch fire resources and coordinate logistical activities among the units to better utilize all resources and implement the closest forces concept.

Fire management program activities (i.e. fire reports, notification to entities, prescribed fires, etc.) will remain in the purview of each respective Unit, as well as all functions of initial attack dispatch planning. This plan in no way curtails, supersedes, or diminishes any unit's responsibility or authority in operating their individual organization.

It is understood that this plan addresses only the administration and logistical support functions for the participating units and that no exchange of funds, goods, or services will be authorized within the scope of this plan, with the exception of Idaho Department of Lands who lease the SIIDC Dispatch Center for the other agencies.

This plan must be amended or modified as mutually agreed upon by all parties through correspondence, (i.e., FAX or MAIL).

Each agency should retain a copy of this plan for subsequent amendments and possible clarification.

All signing entities will have their respective fire staffs review the SIIDC Operating Plan on an annual basis to assure that all portions of the plan are current and operating as prescribed. Authority for updating and/or making minor changes is delegated to, and the responsibility of, individual agency fire staff directors. In the event a significant change is necessary, the plan will be distributed to each Unit's Agency Administrator for approval and signature.

## **2. AREAS OF RESPONSIBILITY**

SIIDC will serve as a coordination center for the previously stated units and will have responsibility for the following areas:

1. Aviation (Fire and as requested, non-fire)
2. Resource and Fire Supply Ordering (non-fire as requested)
3. Resource Status
4. EGBCC Situation Reporting
5. EGBCC Receiving and Distributing Reports
6. Receiving and Relaying Resource and Overhead Orders

### **2.1 AVIATION**

All Aviation Management functions remain with the individual units. SIIDC will be responsible for flight following all aircraft in-flight to and from incidents or bases. When an aircraft arrives at the incident, flight following will become the responsibility of the incident until it leaves the incident, whereby SIIDC will again resume flight following (positive hand-off will be documented by SIIDC).

All Point-to-Point flights should be tracked through FAA with a standard flight plan (See Great Basin Mob Guide - Section 24.1.2.C) unless the unit requests SIIDC to flight follow the aircraft.

All aircraft needs beyond those of the individual agencies for initial attack should be ordered through SIIDC.

A Resource Order will be completed for any initial attack aircraft on an incident that goes beyond initial attack or that will be used into the next burning period. All ordering of initial attack aircraft will be according to the Great Basin Mob Guide standards.

When flight following aircraft, SIIDC will initiate the procedure for a down or missing aircraft by notifying the appropriate Unit. The notified unit will then activate their Search and Rescue Plan following their agency guidelines. SIIDC will assist the unit when requested.

Reconnaissance flights of all types (other than those attached to an incident), will flight follow with SIIDC.

Upon request SIIDC will assist in arranging for aircraft for non-fire missions. The requesting unit will be responsible for filling out a flight request/schedule form and SIIDC will arrange for the appropriate aircraft. All payment for non-fire flights will be through the ordering agency unless approved by the SIIDC manager.

Twin Falls Retardant Base - The Twin Falls Retardant Base is staffed seven days a week during the fire season. The hours of operation are 0930-1800 and are extended when there is fire activity. During the early and late season the base is staffed on an as needed basis and there may be minor delays in activating the base.

### **2.2 RESOURCE ORDERING AND STATUS**

Daily Resource Availability Reports will be transmitted to SIIDC by 1000. When a status change occurs with a unit's fire resources that may impact other units, SIIDC should be notified as soon as possible. If a unit is responding to a fire on their unit, the center should be notified immediately.

SIIDC will send a location summary of all units in the area to all units by 1100 each day. If significant changes occur the summary will be updated.

### **2.2.1. RESOURCE ORDERING**

All entities will order initial attack forces via guidelines specified within the Great Basin Mob Guide section 21. Usually, the units will only need to call SIIDC and the order will be placed by the center.

### **2.2.2. RESOURCE ORDERS RECEIVED**

All resource orders from EGBCC or other centers outside of local agreements will be processed through SIIDC. SIIDC will notify the affected units of the incoming resource orders to facilitate filling the orders in a timely manner. All resource orders from EGBCC will be distributed as equally as possible. Consultation with each affected unit's Fire Management Staff will determine what a particular unit can/will contribute to filling a resource order.

Overhead resource orders will be filled based upon the individual unit's ability to fill the order. Overhead resource orders will be filled and processed in the same manner as standard resource orders.

### **2.2.3. RESOURCE SUPPLY ORDERS**

Emergency resource or supply orders being used for an ongoing fire, and those going directly to a fire, will normally be ordered through SIIDC and be filled by the nearest source of supply. SIIDC will attempt to fill orders through the local caches first.

All non-fire orders and restocking orders will be processed by the separate units according to their individual policies and the Great Basin Mob Guide. SIIDC will give assistance with the orders when requested. SIIDC will facilitate orders placed to the Great Basin Cache in Boise when requested.

## **3. COMMUNICATIONS**

### **3.1. RADIO**

SIIDC and the South-Central Idaho Fire Operations will follow the State BLM Radio channeling plan. All unit's radio frequencies are displayed in Appendix 1.

### 3.2. DATA, PHONE, E-MAIL

ORGANIZATION	CONTACT PERSON	ADDRESS	PHONE NUMBERS	EMAIL ADDRESS
SIIDC	Dispatcher on Duty or Frank Miller	P. O. Box 2B 213 West F Street Shoshone, ID 83352	886-2373 or 886-7633 Fire: 800-974-2373 Fax: 886-7316 Frank Cell: 731-0753	ID_SID_Dispatch@blm.gov or Frank_Miller@blm.gov
South-Central Idaho Fire Operations - Burley	Mark Wiseman	200 S. Oakley Highway Burley, ID 83318	677-6649 or 677-6645 Fax: 677-6655	Mark_Wiseman@blm.gov
South-Central Fire Operations - Shoshone	Mike Aoi	400 West F Street Shoshone, ID 83352	886-7228 Fax: 886-7327	Michael_Aoi@blm.gov
City of Rocks National Monument	Randy Farley	P. O. Box 169 Almo, ID 83312	824-5519 or 824-5535 Fax: 824-5563	Randy Farley@nps.gov
Craters of the Moon National Monument	George Rummele Tammy Henderson	P. O. Box 29 Arco, ID 83213	527-3257 Fax: 527-3073	George Rummele@nps.gov
Hagerman National Fish Hatchery	Bryan Kenworthy	3059 D Nat'l Fish Hatchery Road Hagerman, ID 83332	837-4896 Fax: 837-6225	bryan_kenworthy@fws.gov
Hagerman Fossil Beds National Monument	James Ward	P. O. Box 570 Hagerman, ID 83332	837-4793 Fax: 837-4857	James_Ward@nps.gov
Idaho Department of Lands	Howard Kestie Max Hall	329 Washington P. O. Box 149 Gooding, ID 83330	934-5606 Fax: 934-5362	
Malad Gorge State Park	Kevin Lynott	1074 East 2350 South Hagerman, ID 83332	837-4505	mao@idpr.state.id.us

## 4. PROCEDURES

### 4.1 DAILY AND NORMAL SITUATION REPORTING

SIIDC will transmit a daily cumulative list of available resources from all units to the Eastern Great Basin Coordination Center (EGBCC). Units will send the Daily Situation Report to SIIDC one-half hour before the report is due into EGBCC. (This will be established on a yearly basis.) If no report is received by SIIDC by the prescribed time, SIIDC will report the unit's previous day's resource status.

All Situation Reports will be processed through SIIDC unless otherwise directed or negotiated.

### 4.2 HOURS OF OPERATION

Summer hours typically run from June through September, with the exception of Hagerman Fossil Beds whose summer hours are from Memorial Day through Labor Day. Hours are subject to change due to weather, fire conditions, etc. All Dispatch Centers and/or offices should keep SIIDC informed of any change in operational hours or of special needs. SIIDC will extend the hours upon request.

SIIDC will publish a list for all units of on-call personnel for after hours calls by 1800 on the **Friday** preceding the coming week.

	SUMMER HOURS	SPRING/FALL HOURS	WINTER HOURS
SIIDC	0700-2200 - 7 days/wk	0700-1800 - 5 days/wk	0745-1630 - 5 days/wk
CITY OF ROCKS	0800-1700 - 7 days/wk	0800-1700 - 7 days/wk	0800-1700 - 5 days/wk
CRATERS OF THE MOON	0800-1800 - Daily	0800-1630 - Daily	0800-1630 - Daily
HAGERMAN FOSSIL BEDS	Office: 0800-1700 M-F Public: 0900-1700 7 days/wk	Office: 0800-1700 M-F Public: 1000-1600 Thurs thru Sun	Same as Spring/Fall Hours
HAGERMAN HATCHERY	0700-1530 - 5 days/wk	0730-1600 - 5 days/wk	0730-1600 - 5 days/wk
IDAHO DEPT OF LANDS	0730-1700 - 5 days/wk	0730-1700 - 5 days/wk	0730-1700 - 5 days/wk
MALAD GORGE	0800-1700 - 7 days/wk	0800-1700 - 5 days/wk	0800-1700 - 5 days/wk
SOUTH-CENTRAL IDAHO AREA FIRE OFFICE	0800-1800 - 7 days/wk	0745-1700 - 5 days/wk	0745-1630 - 5 days/wk

### Appendix 1 - RADIO FREQUENCIES

ORGANIZATION	TRANSMIT	RECEIVE	TX CODE GUARD
SIIDC - SHOSHONE Direct Bald Mountain - Ketchum/Sun Valley Davis Mountain - Bliss/King Hill Bell Mountain - Carey/Craters TAC - 3 - Scene of Action	163.9125 163.0250 163.0250 163.0250 164.5500	163.9125 163.9125 163.9125 163.9125 164.5500	none 107.2 114.3 131.8
SIIDC - BURLEY Direct Magic Mountain - Rogerson/Jarbridge Mt. Harrison - Burley/Twin Falls Malad Peak - Eastern side of dist Twin Peaks - Park Valley, UT TAC - 2 - Scene of Action	163.8625 163.0750 163.0750 163.0750 163.0750 163.1750	163.8625 163.8625 163.8625 163.8625 163.8625 163.1750	none 100.0 107.2 114.3 123.0
City of Rocks They monitor our frequencies and will coordinate with us in case of emergency.			
Craters of the Moon Repeater Channel-1 Direct Channel-1	172.675 171.675	171.675 171.675	123.0
Hagerman National Fish Hatchery They monitor our frequencies and will coordinate with us in case of emergency.			
Hagerman Fossil Beds Direct	172.650	172.650	
Idaho Department of Lands They monitor our frequencies and will coordinate with us in case of emergency.			
Malad Gorge	TX 151.35500	RX 151.35500	none

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**APPROVED BY** (Unit Administrators)

<p>_____  Jim Morrison, Superintendent      Date  Craters of the Moon National Monument  P. O. Box 239  Arco, ID 83213  Telephone: (208) 527-3257</p>	<p>_____  Jim May, Acting District Manager      Date  Upper Snake River District BLM  1405 Hollipark Drive  Idaho Falls, ID 83401  Telephone: (208) 524-7501</p>
<p>_____  Neil King, Park Superintendent      Date  Hagerman Fossil Beds National Monument  National Park Service  P. O. Box 570  Hagerman, ID 83332-0570  Telephone: (208) 837-4793</p>	<p>_____  Ned Jackson, Park Superintendent      Date  City of Rocks National Reserve  Idaho Dept. of Parks &amp; Recreation  P. O. Box 169  Almo, ID 83312  Telephone: (208) 824-5519</p>
<p>_____  Bryan Kenworthy, Station Manager      Date  Hagerman National Fish Hatchery  U. S. Fish &amp; Wildlife Service  3059 D, National Fish Hatchery Road  Hagerman, ID 83332  Telephone: (208) 837-4896</p>	<p>_____  Kevin M. Lynott, Park Manager      Date  Malad Gorge State Park  Idaho Department of Parks &amp; Recreation  Rt. 1, P. O. Box 358  Hagerman, ID 83332  Telephone: (208) 837-4505</p>
<p>_____  Howard Kestie , District Manager      Date  Idaho Department of Lands  329 Washington  Gooding, ID 83330  Telephone: (208) 934-5606</p>	

## **BLM/NPS Annual operating Plan**

**ANNUAL OPERATING PLAN  
1999**

**BETWEEN  
DEPARTMENT OF INTERIOR,**

BUREAU OF LAND MANAGEMENT  
Upper Snake River District,  
South Central Idaho Area

NATIONAL PARK SERVICE  
Craters of the Moon National Monument  
Hagerman Fossil Beds National Monument

FISH AND WILDLIFE SERVICE  
Hagerman National Fish Hatchery

**and  
THE STATE OF IDAHO,**

IDAHO DEPARTMENT OF LANDS  
Gooding Area Office

IDAHO DEPARTMENT OF PARKS AND RECREATION  
Malad Gorge State Park  
City of Rocks National Reserve

## **INTRODUCTION**

This operating plan involves the lands located in Idaho under the jurisdiction of the Bureau of Land Management (BLM) Upper Snake River District, The Idaho Department of Lands, Idaho Department of Parks and Recreation (Malad Gorge State Park, City Of Rocks Reserve), the U.S. National Park Service (Craters of the Moon National Monument, Hagerman Fossil Beds National Monument), and the U.S. Fish and Wildlife Service (Hagerman National Fish Hatchery and their cooperators).

The purpose of this plan is to coordinate the fire management activities of the State of Idaho, (Idaho Department of Lands, Malad Gorge State Park, and City of Rocks National Reserve), National Park Service (Craters of the Moon National Monument and Hagerman Fossil Beds National Monument), Fish and Wildlife Service, Hagerman National Fish Hatchery, and the Bureau of Land Management, South Central Idaho Area. Hereafter called Units.

The participating Units will establish a mutual response area between the parties to this plan using the closest forces concept.

This Annual Operating Plan is authorized by the Reciprocal Fire Protection Act of May 27, 1955 (42 USC - 1856a); Department of Interior and Related Agencies Appropriations Act, 1999, as included in Public Law 105-277, section 101(e); the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1748 et seq.); and the Cooperative Fire Protection Agreement between USDI BLM Idaho, NPS Pacific West Field Area, BIA Portland Area, FWS Pacific Region, USDA Forest Service Pacific Northwest, Intermountain, and Northern Regions, and the State of Idaho Department of Lands, (BLM Reference Number 1422D910A60203), dated 3/29/96, the Mutual Aid Agreement between the Bureau of Land Management, Upper Snake River District and the City of Rocks National Reserve, and the Mutual Aid Agreement between the Bureau of Land Management, Upper Snake River District and the Malad Gorge State Park.

### **1. PROTECTION RESPONSIBILITIES**

#### **A. MUTUAL RESPONSE AREA**

All the participating Units agree to provide suppression response on a closest forces concept which does not diminish their ability to meet their own jurisdictional responsibilities. To be more specific the Craters of the Moon agrees to respond to fires within at least one mile of their protection boundary while the BLM agrees to send an engine to cover the Monument's responsibilities. The City of Rocks National Reserve agrees to respond to fires as indicated in Appendix 1, Maps and the mutual aid agreement between the City of Rocks and the BLM. The BLM agrees to provide supporting suppression resources to any of the participating entities.

## **II. OPERATIONAL PROCEDURES**

### **A. SUPPRESSION ACTION**

Prompt and efficient initial attack shall be made on all fires in accordance with this operating plan and the Southern Idaho Interagency Dispatch Center (SIIDC). The closest available initial attack forces will be dispatched to the incident regardless of jurisdiction. Each Unit will provide an Incident Commander for any fire that occurs within their jurisdiction except for the Hagerman National Fish Hatchery where the responding Unit will provide a qualified Incident Commander for all fires.

The BLM agrees to; when responding to a fire of another Unit by helicopter, meet their Incident Commander or representative at any requested location.

The first forces to reach an incident will initiate fire suppression operations and management until the qualified personnel of the jurisdictional Unit arrive to assume control except for aforementioned case of the Hagerman National Fish Hatchery. All fires will be managed under the Incident Command System. Any shift in command during or after initial attack will be documented in writing and logged by Southern Idaho Interagency Dispatch Center.

Any Unit which responds to a fire outside their jurisdiction agrees to notify the jurisdictional agency. The BLM agrees to notify the Idaho Department of Lands Office in Gooding for approval to take suppression action on State lands which are in geographic blocks of 2,500 acres or larger.

All personnel involved in fire suppression activities will adhere to National Wildfire Coordinating Group (NWCG) requirements for Personnel Protective Equipment, training, and safety.

The BLM agrees to provide any reasonable presuppression assistance for other entity's engines and equipment. This may include inspection of engines and equipment, assistance with maintenance, or use of BLM facilities to effect minor repairs.

The BLM agrees to assist in procuring suppression supplies and provide supplies through their warehouse during fire emergencies.

The Craters of the Moon agrees to store BLM supplies within their own cache for use by both entities and allow the use of their supplies.

## **B. Air Operations**

Air tankers, fixed wing, helicopters and other aviation resources will be used in accordance with the jurisdictional Unit's policy.

If any aerial reconnaissance flights are planned by any Units in the mutual response area, the Unit will coordinate the activities through SIIDC

## **C. Communications**

1. The IRAC/FCC regulations and specific agency guidelines dictate a prescribed format be followed to acquire approval for interagency use of allocated radio frequencies. The following radio frequencies are included in this operating plan to facilitate this approval. Unit administrator signature is required in this process. Signature to this annual operating plan is authorizing use of the frequencies on initial attack and sustained attack responses on a per incident basis.

2. Frequencies that may be utilized by Units party to this annual operating plan while managing incidents for the benefit of one or more jurisdictions are listed in Appendix 3.

# **III. FIRE PREVENTION**

## **A. Information and Education**

Prevention activities for local, civic, and educational groups will be coordinated among the participating entities. The contact for assistance from the BLM will be Curtis Jensen at the Shoshone Office at 886-7311.

## **B. Restrictions and Closures**

Fire restrictions and closures procedures for State and Federal entities are outlined in the "Operating Plan for the Implementation of Fire Restrictions/Closures in Idaho". All Units are represented by the plan and adhere to the requirements.

#### **IV. Training**

All training activities will be coordinated among the participating Units to avoid duplication and to provide for efficient use of time, personnel, and expenditures.

All personnel involved in suppression activities will meet NWCG requirements for training and qualifications. Each Unit will be responsible for the certification of their own employees.

The BLM agrees to maintain a yearly fire school by providing S-130 and S-190 and to provide refresher training for “10 and 18”, “fire shelter”, and “LCES”. The BLM contact for training will be Dennis Smith at the Burley Field Office at 677-6644.

#### **V. FUELS MANAGEMENT**

Fuels management activities will be coordinated with the participating Units to maximize training opportunities, facilitate the completion of management ignitions, and to minimize the impacts to neighboring Units.

Cooperating Units to this plan agree to notify other participating Units of prescribed burns, limited suppression areas, etc. which are being formulated so that all concerned agencies may be involved in the planning process.

The BLM agrees to notify the Craters of the Moon of any management ignitions, which may impact the Class I Airshed.

The BLM contact for fuels management will be Ray Mitchell at the Shoshone Field Office at 886-7245.

#### **VI. SMOKE MANAGEMENT**

The requirements and procedures of State and Federal entities for Smoke Management within Idaho are outlined in the *Montana/Idaho Airshed Group Plan* (Implementation Date Fall 1999).

#### **VII. BILLING PROCEDURES**

By virtue of the authorizing agreements which are identified in the preamble there will be no billing for services or expenditures between the Units except as outlined in the Cooperative Fire Protection Agreement of 3/29/96.

#### **VIII. CLAIMS AND CONFLICTS**

All claims have been addressed in the original agreements, which are identified in the preamble.

In the event of any conflict between the provisions of this operating plan and the provisions of the agreements, the provisions of the agreements will govern.

## **IX. LOGISTICAL SUPPORT**

The BLM agrees to provide logistical support to all the operating entities as identified in the Memorandum of Understanding and the Annual Operating Plan for the Southern Idaho Interagency Dispatch Center (SIIDC). The items addressed within the SIIDC plan include the following: Aviation, Resource Ordering, Communications, and Situations Reporting.

## **X. EFFECTIVE DATE**

The terms of this operating plan shall become effective for each signer on the date of signing. The operating plan will remain in effect until ratification of a new plan or; when major changes or revisions necessitate the signing by agency administrators.

## **XI. ANNUAL MEETING**

This Annual Operation Plan will be reviewed in April of each year and will be hosted by the Bureau of Land Management. The host will arrange meeting date, time, and location.

All signing entities will have their respective fire staffs review the Operating Plan on an annual basis to assure that all portions of the plan are current and operating as prescribed. Authority for updating and/or making minor changes is delegated to, and the responsibility of, individual agency fire staff directors. In the event a significant change is necessary, the plan will be distributed to each Unit's Agency Administrator for approval and signature.

## APPENDIX 3

### UNIT RADIO FREQUENCIES

ORGANIZATION	TRANSMIT FREQUENCY	RECEIVE FREQUENCY	TONE GUARD
SIIDC - SHOSHONE			
Direct	163.9125	163.9125	none
Bald Mountain - Ketchum/Sun Valley	163.0250	163.9125	107.2
Davis Mountain - Bliss/King Hill	163.0250	163.9125	114.3
Bell Mountain - Carey/Craters	163.0250	163.9125	131.8
TAC - 3 - Scene of Action	164.5500	164.5500	
SIIDC - BURLEY			
Direct	163.8625	163.8625	none
Magic Mountain - Rogerson/Jarbridge	163.0750	163.8625	100.0
Mt. Harrison - Burley/Twin Falls	163.0750	163.8625	107.2
Malad Peak - Eastern side of dist	163.0750	163.8625	114.3
Twin Peaks - Park Valley, UT	163.0750	163.8625	123.0
TAC - 2 - Scene of Action	163.1750	163.1750	
City of Rocks They monitor our frequencies and will coordinate with us in case of emergency.			
Craters of the Moon			
Repeater Channel-1	172.675	171.675	123.0
Direct Channel-1	171.675	171.675	
Hagerman Fossil Beds			
Direct	172.650	172.650	
Idaho Department of Lands They monitor our frequencies and will coordinate with us in case of emergency.			
Malad Gorge	151.35500	151.35500	none

**APPROVED BY** (Unit Administrators):

<p>_____  Jim Morris  Superintendent  Craters of the Moon National Monument  P. O. Box 239  Arco, ID 83213  Telephone: (208) 527-3257</p> <p>Date</p>	<p>_____  Ned Jackson  Park Superintendent  City of Rocks Preserve  Dept. of Parks &amp; Recreation  P. O. Box 169  Almo, ID 83312  Telephone: (208) 824-5519</p> <p>Date</p>
<p>_____  Jim May</p> <p>Date</p> <p>District Manager  Upper Snake River District  South Central Idaho Area  1405 Hollipark Drive  Idaho Falls, ID 83401  Telephone: (208) 524-7501</p>	<p>_____  Bryan Kenworthy</p> <p>Date</p> <p>Station Manager  U. S. Fish &amp; Wildlife Service  Hagerman National Fish Hatchery  3059 D, National Fish Hatchery Road  Hagerman, ID 83332  Telephone: (208) 837-4896</p>
<p>_____  Neil King</p> <p>Date</p> <p>Superintendent  Hagerman Fossil Beds  National Monument  National Park Service  P. O. Box 570  Hagerman, ID 83332-0570  Telephone: (208) 837-4793</p>	<p>_____  Kevin M. Lynott</p> <p>Date</p> <p>Park Manager  Malad Gorge State Park  Idaho Department of Parks &amp; Recreation  Rt. 1, P. O. Box 358  Hagerman, ID 83332  Telephone: (208) 837-4505</p>
<p>_____  Howard Kestie</p> <p>Date</p> <p>Superintendent  Idaho Department of Lands  329 Washington  Gooding, ID 83330  Telephone: (208) 934-5606</p>	

# ANNUAL UPDATE

UNIT	2000	2001	2002	2003	2004
Idaho Department of Lands					
Malad Gorge State Park					
City of Rocks National Reserve					
Hagerman Fossil Beds National Monument					
Craters of the Moon National Monument					
Hagerman National Fish Hatchery					
BLM, Upper Snake River District					

## **Appendix I (Wildland Fire Prevention Plan)**

## **Wildland Fire Prevention Plan**

### **I. Introduction**

Wildland fire prevention efforts in Hagerman Fossil Beds National Monument (HAFO) will be directed toward human-caused ignitions that pose a threat to visitors, employees, neighbors, facilities, cultural/paleontological resources and natural resources of HAFO. The HAFO prevention program is based on the relative risk of ignitions in the Monument, the hazards associated with the risks and finally the values at risk of being burned.

#### **A. Objectives**

- Prevention of wildland fires in the Monument and the spread of fire onto adjacent lands.
- Reduce the threat of human-caused fires through visitor, employee and regional education programs.
- Reduce the threat of human-caused fires through patrol techniques based upon the HAFO step-up plan.
- Reduce the spread of wildland fires through aggressive suppression strategies.
- Integrate wildland fire prevention messages into interpretive programs.

#### **B. General Actions**

General prevention actions are designed to reduce the number of human-caused fires on the Monument. Cooperative efforts with other fire fighting organizations will also lead to a reduction of wildland fires outside of Monument boundaries which may have potential to impact the Monument.

- Prevention actions will be based upon the HAFO Step-up Plan for wildland fire preparedness.  
Responsibility: Collateral Duty FMO                      Completed by: On-going
- Fire preparedness equipment will be maintained in a ready state during periods of wildland fire danger.  
Responsibility: Collateral Duty FMO                      Completed by: Initial – May 1<sup>st</sup> ,then ongoing
- Fire prevention will be a daily employee-briefing topic during periods of high fire danger. Topics will includes prevention messages and the objectives of the fire management program.  
Responsibility: Staff/Supervisors                      Completed by: On-going
- HAFO will cooperate with the Southern Idaho Interagency Dispatch Center in promoting prevention messages for the region.  
Responsibility: Collateral Duty FMO                      Completed by: On-going
- Prevention messages given to the public will include the positive effects of prescribed fire as well as standard fire prevention messages.

Responsibility: Collateral Duty FMO will provide general and specific messages to staff  
Completed by: General messages – June 1 Specific Messages – on-going

- During periods of extreme or prolonged fire danger fire prevention messages will be incorporated into all interpretive programs.

Responsibility: message: Collateral Duty FMO, presentation: Staff Completed by: On-going

- Any emergency closures based on fire danger will include a fire prevention message.

Responsibility: Superintendent Completed by: On-going

- Fire prevention and fire effects information will be made available to the public during any prescribed fire operations in HAFO.

Responsibility: Collateral Duty FMO Completed by: On-going

- HAFO will work on reestablishing green belts along county roads accessing the Monument.

Responsibility: Collateral Duty FMO Completed by: On-going

## **II. HAFO Wildland Fire Risks**

HAFO historically has had a low number of annual wildland fire occurrences. In the last ten years there have been five fires averaging sixty-seven acres in size.

Visitor usage in HAFO is centered on hiking, motoring, horseback riding and some hunting in the zone adjacent to the reservoir. Visitor use can be a source of ignitions in the Monument.

Agricultural burning, off-road vehicle use and other uses of land outside of HAFO's boundaries do occur on a regular basis. Off-road vehicle use is not permitted in HAFO except for maintenance activities.

## **III. HAFO Hazards**

HAFO contains fuel types that are very susceptible to ignition. Wyoming big sage with associated grasses and forbs comprise a fuel bed that will burn with high spread rates, especially under wind and slope effects. Areas with cheat grass also exhibit high flammability and associated fire spread rates.

## **IV. HAFO Values At Risk**

1. **Museum site:** The museum site at this time contains one historic structure, a preparation laboratory building, a barn and other associated outbuildings. The museum site houses all of the Park's museum collections. Adjacent to the museum site are farm houses with associated out-buildings. This site contains flashy fuels near the reservoir that could create a negative impact if a wildland fire occurred. As this site becomes more developed and visitors are allowed to use constructed trails the risk of fire will increase.

2. **Monument:** The Monument site contains boardwalks, interpretive signing, fences, transportation signing, wooden power poles, an electrical substation and an irrigation pumping station. All of these improvements would be at risk during a fire event. The construction of trails through the Monument will increase the likelihood of wildland fire from human caused ignitions. Reestablishment of the green belts along roadways will reduce the size of fire starts in HAFO thereby lessening the risk of unwanted fire impacts. The Monument also contains fossils, which would only be impacted by fire if they were lying exposed to the heat of the flames, direct risk would be minimized if the fossils were still buried. There may be some cultural resource impacts on the Monument, especially at the south end, which contains segments of the Oregon Trail.

**Table 1. Prevention Actions by Preparedness Levels for Hagerman Fossil Beds National Monument.**

Prepared. Level	Procedures
I BI (0-20)	No activity necessary. Normal eight (8) hour tours of duty. Red-carded employees are available to respond and take necessary action on any fire reported.
II BI (21-40)	Normal eight (8) hour tours of duty. Fire equipment and supplies serviced and prepared for use.
III BI (41-60)	Normal eight (8) hour tours of duty. Monument is totally prepared to respond to a fire. All relevant personnel know locations of red-carded personnel. Red-carded personnel have fire tools and personal protective equipment immediately available in their work vehicles or at their work site.
IV BI (61-80)	All activities in Readiness Class III are continued. Approval for expenditure of PWE-381 funds is obtained from the SSO FMO. The Superintendent is notified of conditions. Tours of duty may be extended to 7 days per week, ten (10) hours per day. Increased prevention and detection patrols are conducted. A minimum of two (2) red-carded firefighters are available during the burning period (to at least 1800 hours). Longer hours of coverage are initiated for certain key positions (FMO, lead maintenance worker). Lieu days and leave may be canceled for red-carded firefighters. Cooperatives are contacted and activities coordinated (federal, state and county fire departments) in an effort to provide consistent information to the public and Monument neighbors. High Fire Danger notices will be posted in Visitor Centers and at site bulletin boards.
V&VI BI (81+)	All activities in Readiness Class IV are continued. Restrictions and closures of Monument areas may be deemed necessary. Interpretive activities will include a fire safety message.

## **Appendix J (Pre-attack Planning Checklist)**

## **Pre-attack Planning Checklist**

### **Command**

Pre-attack WFSA (if appropriate)  
Pre-positioning needs  
Draft delegation of authority  
Management Constraints  
Interagency Agreements  
Evacuation Procedures  
Structural Protection Needs  
Closure procedures

### **Logistics**

ICP, base, camp locations  
Roads, trails (including limitations)  
Utilities  
Medical Facilities  
Stores, restaurants, service stations  
Transportation resources location  
Rental equipment sources (by type)  
Construction contractors  
Sanitary facilities  
Police, fire departments  
Communications (radio, telephone)  
Sanitary landfills  
Portable water sources  
Maintenance facilities

### **Operations**

Helispot, helibase locations  
Flight routes, restrictions  
Water sources  
Control line locations  
Natural barriers  
Safety zones  
Staging area locations

### **Planning**

Park base map  
Topographic maps  
Infrared imagery  
Vegetation/ fuels maps  
Hazard locations (ground and aerial)  
Paleontological/Archaeological/cultural base map  
Endangered species critical habitats  
Sensitive plant populations  
Special visitor use areas  
Land status

## **Appendix K (LIMITED DELEGATION of AUTHORITY)**

**Hagerman Fossil Beds National Monument  
LIMITED DELEGATION of AUTHORITY**

Date:

To: \_\_\_\_\_, Incident Commander, \_\_\_\_\_ Fire

From: Superintendent, Hagerman Fossil Beds National Monument

Subject: Delegation of Authority for Fire Suppression

As Superintendent, I am responsible to protect the monument's resources and the lives of its visitors and employees. Your expertise in management of fires will assist me in fulfilling that responsibility during the present emergency situation.

By means of this memorandum I delegate to you the authority to carry out control of the fire or complex of fires named above in accordance with Department of Interior and Park Service policy and guidelines provided in the Agency Administrator's briefing and the wildland fire situation analysis. These documents will provide you with information on the current situation, management objectives and priorities, and constraints necessary to protect the monument's resources. You will find additional guidelines, concerns and constraints, if any, attached. A list of personnel assigned to assist you and of facilities available for use is attached.

Upon the arrival of the entire team, I will conduct an onsite briefing for you and your overhead organization. The local fire bosses will also conduct a fireline briefing for you and your staff.

Additional considerations follow.

1. Your first priority at all times is safety of firefighters and the public.
2. My Agency Advisor for you is \_\_\_\_\_, whose title is \_\_\_\_\_ . He/she has full authority to act for me in my absence.
3. My Resource Advisor for you is \_\_\_\_\_, whose title is \_\_\_\_\_ .
4. Consistent with the suppression strategy, minimize environmental impacts. Use natural barriers and cold trail when possible. Avoid opening corridors along trails. Cut stumps to ground level, and remove trash from firelines daily. If not already addressed, specific needs for rehabilitation will be identified.

5. Emergency funds are available, but you should be prepared to make full explanation and provide accountability for any and all expenditures.
6. Dozers and all-terrain or off-road vehicles shall not be used without specific authorization except for a threat to life and habitable or historic structures. Use of aircraft, power saws and pumps, and generators are authorized as needed.
7. Please try to minimize impacts on monument visitors and neighbors.
8. I expect you to assume management of the fire by this time: \_\_\_\_\_.
9. Office of Aircraft Services certified aircraft may be used within the constraints of Department of Interior policy.
10. All firelines will be rehabilitated, according to NPS policy and plans approved by my Resource Advisor.
11. Manage the fire with minimum disruption to visitor access and monument operations, consistent with public safety. You may close areas if necessary for public safety by authority of 36 CFR. You must notify me prior to implementing any closure.
12. Environmentally compatible retardant use must be approved by my Resource Advisor.
13. Incident base, staging areas, helispots, and camp operations will be confined to:  
.  
.
14. Public information for this Incident must be closely coordinated with the Chief Ranger. The Chief Ranger is \_\_\_\_\_, whose telephone number is \_\_\_\_\_.
15. Notify me of any threats to life or property as soon as possible.
16. Emergency suppression funding is available, and all requests for resources should be forwarded to the Columbia Cascades System Support Office Fire Management Officer, Ken Till at (206) 220-4257.
17. Provide training opportunities for personnel when possible to strengthen our organizational capabilities.

18. A closeout fire analysis and evaluation will be conducted by me or my representative prior to the Incident team departure. I request a 24-hour advance notice of the meeting.

19. Key resource constraints are:

a.

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b.

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c.

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d.

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20. Cultural features requiring priority protection are:

a.

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b.

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c.

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d.

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21. A determination will be made as to the necessity of rehabilitation of burned areas. If it is determined that rehabilitation of burned areas is necessary then a Burned Areas Emergency Rehabilitation report will be prepared for both short and long term rehabilitation requirements. This report will be submitted within 24 hours of control of the fire.

\_\_\_\_\_  
Superintendent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Incident Commander

\_\_\_\_\_

## **Appendix L (Prescribed Burn Plan Format)**

## Prescribed Burn Plan Format



### Hagerman Fossil Beds National Monument

Project Name Here

Approval Signatures:

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

Prescribed Fire Specialist

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

Chief Ranger/ Resource Specialist

\_\_\_\_\_ Date: \_\_\_\_\_

Resource Technician

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Superintendent

#### **ON FIRST DAY OF IGNITION:**

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_

Burn Boss

### Go/ No-Go Checklist

	YES	NO
Is the burn plan complete and approved?		
Are all fire specifications met?		
Is the current and projected fire weather forecast favorable?		
Are all personnel required in the burn plan on site?		
Have all personnel been briefed on the plan requirements?		
Have all the personnel been briefed on safety hazards, escape routes, and safety zones?		
Is all of the required equipment in place and in working order?		
Are available resources available as backup for containment under worst case conditions?		
Have all pre-burn telephone calls and public safety concerns been met?		
Have all mitigation measures for protected resources been met?		
In your opinion, can the burn be carried out according to plan and will it meet the objectives?		
Are you comfortable with the contingency plan?		

If there is a NO response to any of the above questions, the burn will not occur until the problem is solved.

This is a required form and must be completed prior to ignition.

\_\_\_\_\_  
Signature of burn boss

\_\_\_\_\_  
Date

\_\_\_\_\_  
Time

**Description of the Prescribed fire area**

The plant communities at Hagerman Fossil Beds National Monument are classified as "intermontane sagebrush steppe" with a mixture of dryland grasses, forbs and shrubs.

**DESCRIPTION OF SPECIFIC UNIT**

Include a description of the unit being burned.

The monument is a Class II airshed. Smoke effects need to be considered for the nearby communities.

Table 1 lists physical characteristics of the unit.

**Figure 1: Map of burn unit****Table 1: Physical description of burn unit**

<b>Location:</b>
<b>Size:</b>
<b>ELEVATION RANGE:</b>
<b>SLOPE RANGE:</b>
<b>ASPECT(S):</b>
<b>DESCRIPTION OF BOUNDARIES:</b>

**Goals and objectives**

The purpose of this burn is to restore fire as a natural process to the sagebrush-dominated ecosystem at Hagerman Fossil Beds NM (HAFO). Research and historical documentation indicates an overall increase in sagebrush and a decrease in abundance of native bunchgrass.

This burn plan is compliant with the Fire Management Plan and Environmental Assessment for HAFO,

Date: \_\_\_\_\_

The specific objectives for this burn are to:

1)

**Range of acceptable results**

Acceptable results for this burn include meeting these resources objectives while doing the following:

- 1) Ensure safety for the public and personnel associated with the fire.
- 2) Protect fossil resources.
- 3) Eliminate natural and cultural resource damage.
- 4) Limit smoke impacts to neighboring communities.
- 5) Increase public education regarding the role of fire in these ecosystems.

## Project assessment

### Complexity

Table 2 Lists the calculated Complexity rating for the burn. This complexity analysis provides a method to assess the complexity of both wildland and prescribed fires. The analysis incorporates an assigned numeric rating value for specific complexity elements that are weighted in their contribution to overall complexity. The weighted value is multiplied times the numeric rating to provide a value for that item. Then all values are added to generate the total complexity value. Breakpoint values are provided for low, moderate, and high complexity values.

Complexity ratings for each category range from 1 (low complexity) to 5 (high complexity). Descriptions of complexity level ratings can be found in the Fire Management Plan. Weighting values are shown in the table.

Complexity Rating (circle)	Low	40-90
	Moderate	91-140
	High	140-200

Table 2: Complexity Rating

Complexity Element	Weighting Element	Complexity Value	Total Points
Safety	5		
Threats to boundaries	5		
Fuels and fire behavior	5		
Objectives	4		
Management Organization	4		
Improvements	3		
Natural, cultural, social values	3		
Air quality values	3		
Logistics	3		
Political concerns	2		
Tactical operations	2		
Interagency coordination	1		
TOTAL COMPLEXITY POINTS			

## Risk Assessment

**INSERT RISK ASSESSMENT FOR THE PROJECT HERE**

### Prescribed fire implementation actions

#### Preburn Considerations

The following will be completed prior to ignition:

- 1) Ensure protection of visitors, employees, and the public. Local media will be informed of the burn prior to ignition.
- 2) The burn boss will be responsible for any holding actions deemed necessary at the time of ignition. Resource advisors will be involved with the construction of any fireline.
- 3) Layout of ignition areas will be precise prior to ignition. Maps will be prepared and be readily available to all personnel. NO ONE will be allowed inside the burn unit area without a proper briefing.
- 4) Helispots will be identified and marked for use as necessary.
- 5) On site weather and spot weather forecasts will be available prior to ignition. These data will assist in all aspects of the burn and will aid in ensuring firefighter safety. This is the burn boss' responsibility.

#### Briefing

A briefing will be conducted for all fire personnel. This briefing will include distribution of a staffing plan and maps to all individuals working on the fire. Elements of the briefing should include safety, personnel assignments, communications, ignition and holding plans, and description of the contingency plan.

#### Test Fire

A test fire will be ignited prior to ignition of the entire unit. At the discretion of the burn boss, this test fire may occur as part of the stated ignition sequence. If this test fire is deemed to be burning within prescription, the ignition sequence may continue.

#### Prescribed Fire Prescription

Table 3 lists the range of acceptable values for key variable in the prescription. Appendix B contains the BEHAVE runs validating these ranges.

Table 3: Prescription parameters

	Day 1		Day 2	
	Acceptable Range	Desired	Acceptable Range	Desired
Fuel Model				
Temperature				
RH				

Mid-Flame Wind Speed				
Slope				
Wind Direction				
1 hr fuel moisture				
10 hr fuel moisture				
100 hr fuel moisture				
Live fuel moisture				
Rate of Spread				
Flame length				
Scorch height				
Spotting distance				

### **Special Conditions, Public and Personnel Safety**

All standard wildland firefighter safety rules will be strictly enforced. Project personnel will wear appropriate personal protective equipment (PPE) during all phases of the project. No person will be allowed into the project area during preparation or execution without the appropriate PPE.

A daily safety briefing will be held prior to work on the project during each phase of the project (see briefing section).

The burn boss and prescribed fire management team will analyze safety concerns such as smoke on main roads, potential health impacts to visitors, and other issues. The burn boss will be responsible for resolving these issues, as appropriate.

The Burn Boss will work with and through appropriate line supervisors to institute any corrective safety measures associated with this project. If a serious safety issue cannot be resolved prior to ignition of any portion of this project, ignition will not take place. If the issue occurs during the execution of the project it will be mitigated with the most reasonable measures possible that will provide for the safety of the public and employees. If necessary, the project will be shut down. The burn boss, Chief Ranger, Prescribed Fire Specialist, and Superintendent have the authority to shut down operations on this project.

### **Burn Organization**

Required positions for this burn include:

#### **1 LIST POSITIONS HERE**


Multiple positions may be filled by 1 person where appropriate (e.g., burn boss and ignition specialist). All persons filling the se positions must be NWCG qualified. The Burn boss has the discretion to increase the number of personnel on the fire, as deemed necessary.

### **Ignition Plan**

The proposed ignition for this burn is **(GIVE SEASON)** \_\_\_\_\_. Burn duration is expected to be \_\_\_\_\_ **(NUMBER OF)** days.

The burn will NOT be conducted if any of the following conditions exist:

- 1) Out of prescription dates or conditions of project plan are not met.
- 2) Emergency shutdown necessary.
- 3) Management concerns preclude ignition.
- 4) Local, regional, or national preparedness levels preclude new ignitions.

Firing methods will consist of **(DETAIL IGNITION METHOD AND TECHNIQUE)**.

All decisions regarding ignitions may be changed on-site, without revision of the burn plan, as long as prescription parameters are met. Topography, fuels, and weather conditions will drive firing techniques that will be employed on a given day. The Burn Boss, Ignition specialist, and Holding specialist will jointly determine techniques to be used.

### **Holding Plan**

The holding specialist and/or burn boss will recommend holding actions for this burn.

No fire line will be constructed without consultation with a resource advisor, where feasible. All efforts will be made to control any slopover or spots with minimal amounts of ground-disturbing activity.

Aircraft may be used to hold portions of the project when holding capabilities are exceeded. No retardant shall be used within the HAFO boundaries without the approval of the Superintendent or designate.

Mop-up will be conducted **LIST SPECIFICS**.

The holding specialist and burn boss may set up portable water sources, as necessary. Patrols of the fire perimeter will be conducted as determined by the holding specialist and burn boss.

The burn boss, prescribed fire specialist, and superintendent have the right to declare the prescribed fire a wildland fire, should conditions warrant.

### **Cooperation**

Resources from other Federal Agencies may assist in the planning and implementation of this burn.

### **Contingency Plan**

During the life of any portion of this project, prescribed fire activity may threaten the planned fire perimeter through spot fires or slopovers. These types of occurrences are planned for and will not cause the fire to be declared a wildland fire unless the fire activity exceeds the control of the forces available.

Means of attack on slopovers or spots within the contingency area may include (but are not limited to) the use of burnout activities, water from pumps or helicopters, etc. If line building is deemed necessary within the monument boundaries, a resource advisor must be consulted.

The holding specialist will supervise all initial attack activities outside the burn perimeter and contingency boundaries. The holding specialist will make recommendations to the burn boss regarding the ability of the forces at hand to suppress these spots and slopovers. If additional holding forces are not readily available and the spots or slopovers threaten life or values at risk, the burn boss, prescribed fire specialist, or superintendent may declare the escape a wildland fire.

Any suppression activities within the monument boundaries must comply with the HAFO Fire Management Plan.

Should the fire burn onto BLM land, the BLM will be notified immediately.

Should the fire burn onto private land, the private landowner will be immediately notified. Should the private landowner have a burn permit and appropriate line constructed, the state will be notified that these conditions exist. If the private landowner does not have the required documentation or is not prepared, the state will be notified and the fire will be declared a wildland fire and appropriately suppressed.

Upon conversion to a wildland fire, the Burn boss will notify all personnel on the burn and the IC (as identified in the staffing plan; may be the burn boss if so qualified) will assume control of the fire. Dispatch will be notified immediately of the conversion and appropriate resources will be ordered.

The burn boss will be responsible for ensuring that, when necessary, additional contingency resources are available on the day of the burn or place on standby. This will be based on seasonality of the burn, fuel conditions, and ambient weather conditions.

### **Funding**

Funding for this project is provided through NPS hazard fuel monies. Table 4 shows the money allocated through SACS (NPS budgeting mechanism).

Table 4: Funding

### **Smoke Management**

Hagerman Fossil Beds NM is a Class II airshed. Local communities that might be impacted by smoke.

Smoke will be managed following guidelines outlined in the Fire Management Plan including meeting state regulations, monitoring smoke column height and duration, and recording any complaints received by the local community.

### **Monitoring**

Monitoring for the fire behavior and effects for this burn will follow guidelines outlined in the Fire Management Plan (1999). Fire weather, rate of spread, flame lengths and other fire considerations will be made by a qualified fire behavior monitor.

Monitoring plots will be established in the burn unit prior to the burn. A map of these plots will be attached to the burn plan.

### **STATE POSITION OF MONITORS DURING THE BURN.**

The fire monitor(s) will be directly supervised by the burn boss and will abide by all decisions made by the burn boss.

Post-fire monitoring will be completed as soon as conditions in the burn unit have been determined to be safe.

**Post-burn Activities**

Patrols will be established by the burn boss and/or holding specialist, as necessary. The burn boss has the responsibility of declaring the fire out.

The staff of HAFO will be responsible for continued public education and interpretation regarding the burn. Notices and press releases will be prepared after the completion of the burn.

Monitoring of the burn will continue following monitoring guidelines stated previously and in the Fire Management Plan.

## **Appendix M (Fire Report Form, DI-1202)**



1. STATUS CODE		2. REPORTING AGENCY		3c. YEAR		3d. FIRE NUMBER					
4. FIRE TYPE		PROTECTION TYPE		5. GENERAL CAUSE		SPECIFIC CAUSE		6. PEOPLE			
8. STATISTICAL DATA											
8a. STATE		8b. OWNER		8c. VEGETATION		8d. ACRES BURNED					
_____		_____		_____		_____					
_____		_____		_____		_____					
_____		_____		_____		_____					
_____		_____		_____		_____					
_____		_____		_____		_____					
_____		_____		_____		_____					
_____		_____		_____		_____					
9. AGENCY DATA											
9a. FIRE NAME _____					9k. COMPLETE 1 OF 3 (L/L; T/R/S; or UTM)						
9b. AREA NAME _____					LATITUDE _____: _____: _____						
9f. OWNER _____					LONGITUDE _____: _____: _____						
9g. FY. YR. _____					TWN SHP _____ RANGE _____						
9h. FISCAL DATA _____					SECTION _____ MERIDIAN _____						
9j. PROBLEM CLASS _____					UTM Z _____ E _____ N _____						
10. SUPPRESSION DATA											
		DATE		TIME		TYPE		AMOUNT		ACRES	
10a. DISCOVERY/START											
10b. INITIAL ATTACK						1 2 3 4		1 2 3 4			
10c. CONTROL/COMPLETE											
10d. DECLARED OUT											
11. SITE DATA											
11a. TOPOGRAPHY _____			11d. ELEVATION _____				11h. BURNING INDEX _____				
11b. ASPECT _____			11e. STATION _____				11i. ADJ CLASS _____				
11c. SLOPE _____			11f. MSGC _____								
12. PREVENTION DATA											
12k. DAY OF WEEK _____			12l. WAS FIRE INVESTIGATED (Y/N) _____				12m. FIRE CAUSE SUSPECT, KNOWN _____				
12n. SUSPECT = RESIDENT, TRANSIENT, OR UNKNOWN (R/T/U) _____							OR UNKNOWN (K/U)				
NOTE: If you use 2 through 9 for "General Cause" and 30 for "specific cause" in Block #5, please explain the cause in general terms in the "Remarks" section.											
13. PRESCRIBED FIRE DATA											
13c. PLOT OBJ. _____			13f. FUEL MODEL _____				13m. PNF COMPLEXITY				
13d. FIRING TYPE _____			_____				ESCAPE _____ DURATION _____				
13e. COST/ACRE _____			13l. PROJECT # _____				VALUES _____ AIR QUAL. _____				
							FUELS/BEHAV. _____				

**12/94 – NPS Branch of Fire & Aviation Management**

[illegible]



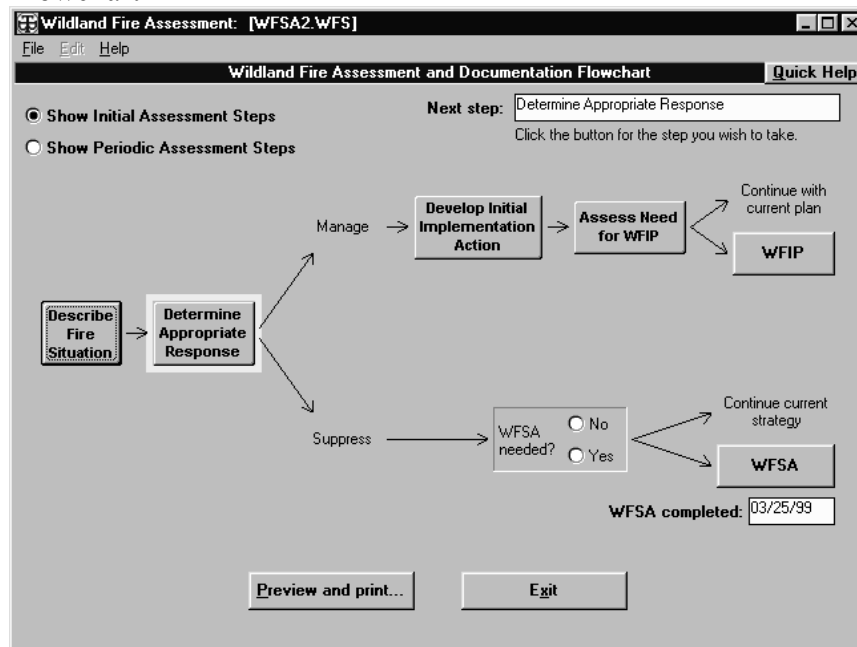
## **Appendix N (Wildland Fire Situation Analysis)**

## **Wildland Fire Situation Analysis**

The following figures represent the steps required in the completion of a WFSA. This software is available from the Columbia Cascade Support Cluster fire planner, if needed.

The first three steps show data entry screens necessary for the completion of the WFSA, including the flowchart, which aids decision making. The inputs are then calculated by the software, and a report is generated (see Step 4). Based on the input information, this report will give an overall assessment of the fire, the alternatives for managing the fire, and costs associated with each.

## Step 1: WFSA Flowchart



## Step 2: Appropriate Management Response Assessment

**Wildland Fire Assessment: [WFSA2.WFS] New**

File Edit Help

**Appropriate Management Response Assessment** Quick Help

**Assessment Date**  
03/25/99

**Instructions**  
Answer each question Yes or No by clicking the appropriate circle.  
  
One or more Yes answers indicates a suppression oriented response. All No answers means the fire should be managed for resource benefits.

Question	Yes	No
Is the fire human caused?	<input type="radio"/>	<input type="radio"/>
Is a suppression oriented response required due to lack of an approved management plan?	<input type="radio"/>	<input type="radio"/>
Is there a serious threat to life, property or resources?	<input type="radio"/>	<input type="radio"/>
Are potential effects on cultural and natural resources outside the range of desired effects?	<input type="radio"/>	<input type="radio"/>
Are relative risk indicators and/or risk assessment results unacceptable to the appropriate Agency Administrator?	<input type="radio"/>	<input type="radio"/>
Is there other proximate fire activity that limits or precludes successful management of this fire?	<input type="radio"/>	<input type="radio"/>
Are there other Agency Administrator issues that preclude wildland fire use?	<input type="radio"/>	<input type="radio"/>

**Risk**

**Assessment**

Preview and print... Return to Flowchart

Step 3: Complete Situation, Objectives, Costs, Impacts, Evaluation, Compare, Complexity, and Decision charts.

The screenshot shows the 'WFS2.WFS' application window. The title bar reads 'WFS2.WFS'. The menu bar includes 'File', 'Step', 'Edit', and 'Help'. The main window is titled 'Fire Situation' and has 'Quick Help' and 'Next' buttons. The form is divided into several sections: 'WFS #', 'Fire Name', 'Incident Number', 'Start Date / Time', 'Current Date/Time', 'Current Fire Size', 'Jurisdiction(s)', 'Geographic Area', 'Unit', and 'Management Code'. There are also four large text areas for 'Fuel Conditions', 'Weather - Current and Forecast', 'Fire Behavior - Current and Forecast', and 'Availability of Suppression Resources'. At the bottom, there is a navigation bar with tabs for 'Situation', 'Objectives', 'Strategies', 'Costs', 'Impacts', 'Evaluate', 'Compare', 'Complexity', and 'Decision'.

Step 4: Generate WFSA

Wildland Fire Situation Analysis	
<b>WFSA Information</b>	
<b>WFSA Number:</b> 1	<b>Jurisdiction(s):</b>
<b>Fire Name:</b>	<b>Geographic Area:</b>
<b>Incident Number:</b>	<b>Unit:</b>
<b>Date/Time Prepared:</b> 03/25/99 0807	<b>Management Code:</b>
<b>Fire Situation</b>	
<b>Start Date/Time:</b>	
<b>Current Fire Size:</b> acres	
<b>Fuel Conditions:</b>	
<b>Fire Behavior - Current and Forecast:</b>	
<b>Weather - Current and Forecast:</b>	
<b>Suppression Resource Availability:</b>	

### Objectives

Objective	Priority	Contribution	Overall
<b>Safety</b>	<b>5</b>	<b>0.25</b>	
Firefighter Safety	5	0.33	0.083
Aviation Safety	5	0.33	0.083
Public Safety	5	0.33	0.083
<b>Economic</b>	<b>5</b>	<b>0.25</b>	
Forage	5	0.14	0.036
Improvements	5	0.14	0.036
Recreation	5	0.14	0.036
Timber	5	0.14	0.036
Water	5	0.14	0.036
Wilderness	5	0.14	0.036
Wildlife	5	0.14	0.036
<b>Environmental</b>	<b>5</b>	<b>0.25</b>	
Air	5	0.25	0.063
Visual	5	0.25	0.063
Fuels	5	0.25	0.063
T & E Species	5	0.25	0.063
<b>Social</b>	<b>5</b>	<b>0.25</b>	
Employment	5	0.33	0.083
Public Concern	5	0.33	0.083
Cultural	5	0.33	0.083

### Alternatives

	Alternative A	Alternative A
Primary Strategy		

Successful Outcome  
 Probability: 100%  
 Final Fire Size: acres  
 Time to Contain: days  
 Time to Control: days

**Suppression Costs**

	Alternative A	Alternative A
<b>Successful Outcome</b>		
Suppression cost: \$0		

## **Appendix O (HAFO Fire Monitoring Plan)**

## **HAFO Fire Monitoring Plan**

### **Introduction (General)**

The focus of this monitoring program will be to study big sagebrush plant associations and cheatgrass response where prescribed fire will be used throughout Hagerman Fossil Beds National Monument. The reason for monitoring is to verify current fire ecology research throughout the monument, and to monitor the invasion of exotic species. Monitoring will be associated with prescribed fire projects in the Monument and the cost of these projects will include the cost of monitoring, within the project area, up to three years after the project is completed.

### **Description of Ecological Model**

The dominant plant community at HAFO is Wyoming big sagebrush/bunch grass and earlier successional stages consisting of grasses and forbs. These earlier stages have either been established by clearing and planting crested wheat grass, or the result of unwanted wildland fire. Other communities exist to varying degrees, but are not affected by fire (e.g., sparsely vegetated communities, such as desertic shrublands). Research on these plants and plant communities has been conducted in other portions of the Great Basin, but is limited for the Monument itself.

The following section discusses basic characteristics of big sagebrush and grasses. Much of this information was obtained from the Fire Effects Information System (FEIS). FEIS provides information on fire effects on plants and animals. It was developed at the USDA Forest Service Intermountain Research Station's Fire Sciences Laboratory. The FEIS Information Center is maintained by the Intermountain Region computer staff and can be found at <http://www.fs.fed.us/database/feis/>.

### **Wyoming Big sagebrush (*Artemisia tridentata*)**

Big sagebrush is an erect shrub normally 3 to 10 feet (1-2 m) tall. It commonly reaches 40 to 50 years of age. The root systems are well adapted to extract moisture from both shallow and deep portions of the soil profile, making them highly competitive with associated grasses and forbs (Blaisdell et al. 1982, Tisdale and Hironaka 1981).

Big sagebrush is easily killed by fire. If sagebrush foliage is exposed to temperatures above 195 degrees Fahrenheit (90 C) for longer than 30 seconds, the plant dies. Site productivity affects the ease with which big sagebrush will burn. Highly productive sites have greater plant density and more biomass, which, in turn, provides more fuel to carry a fire (Britton and Clark 1985).

Big sagebrush reinvades a site by soil-stored or off-site seed. The rate of stand recovery depends on the season of burn. Season affects the availability of seed, postfire precipitation patterns, and the amount of interference offered by other regenerating plant species (Britton and Clark 1985).

### **Selected Grasses**

Dominant grasses at HAFO include bluebunch wheatgrass (*Agropyron spicatum* (Pursh) Scribn & Smith), Thurber's needlegrass (*Stipa thurberiana*), and Sandberg's bluegrass (*Poa sandbergii* (Vasey),) and the non-native Crested wheatgrass (*Agropyron cristatum* (L.) Graten and cheatgrass (*Bromus tectorum*) Descriptions of how each of these grasses respond to fire are listed below.

#### **Bluebunch wheatgrass**

Bluebunch wheatgrass is a drought-resistant species found in a wide range of habitats. It occurs where the annual precipitation ranges from 7 to 30 inches (15-76 cm) per year and is distributed throughout a broad elevational band in the western United States (Wright and Bailey 1982).

Bluebunch wheatgrass regenerates vegetatively following fire. Because of its relatively few, coarse leaves and large stems, little material accumulates at the base of the plant to serve as fuel. Prolonged high temperatures do not occur at the root crown, and most basal buds will survive (Antos et al. 1983).

#### **Thurber's needlegrass**

Thurber's needlegrass is a densely tufted, native, perennial, cool-season bunchgrass (Cronquist et al. 1977). Studies suggest that the litter of sagebrush (*Artemisia* spp.) may inhibit the germination of Thurber's needlegrass and retard seedling growth (Sclatterer and Tisdale 1969).

Season of burn is of primary importance in determining the effects of fire on most needlegrasses (Wright and Klemmedson 1965). Thurber's needlegrass is most severely harmed by midsummer burns and generally much more capable of surviving spring or fall burns (Tisdale and Hironaka 1981). Living tissue often survives only at the periphery of the crown (Wright and Klemmedson 1965). Although recovery time is variable, on some sites preburn levels have been reached within 3 years of the burn (Uresk et al. 1980).

#### **Sandberg's bluegrass**

Sandberg's bluegrass is a shallow-rooted, cool-season perennial bunchgrass. Growth form ranges from small tufts with only one or two culms to large tussocks up to 1-foot (0.3 m) in diameter.

Sandberg's bluegrass generally increases after fire (Wright et al. 1979, Daubenmire 1975, Wright and Klemmedson 1965). Fire generally favors production of Sandberg's bluegrass over bluebunch wheatgrass when bluegrasses and bluebunch wheatgrass occur together. Bluegrasses may also compete successfully with cheatgrass as a result of the tillering that occurs following the reduction of litter and improved insolation caused by fire (Daubenmire 1975). But these post-fire gains last only a few years, after which cheatgrass resumes pre-fire dominance.

#### **Crested Wheatgrass**

As an introduced long-lived, perennial bunchgrass, crested wheatgrass is tolerant of fire when dormant. (Deput 1986) Plants tend to burn quickly, with little residence time for heat to penetrate below the soil surface. (Wright 1985) Several characteristics of crested wheatgrass

lead to its recovery from defoliation: 1) a capacity for new tiller formation, 2) rapid and successful regrowth of new tillers to prevent depletion of stored nutrients, 3) flexibility in allocation of plant resources to regrowing new tillers and the curtailment of root system growth and 4) increased photosynthetic capacity of regrowing foliage. Late summer fires greatly favor crested wheatgrass (Ralphs et.al. 1979)

### **Cheatgrass**

Cheatgrass is an invasive species, favored by disturbances such as overgrazing, cultivation, or frequent fire. Cheatgrass effectively out-competes native vegetation when cover of these species has been reduced. Its rapid growth and its ability to utilize most of the available upper soil moisture enable it to exclude seedlings of other species (Tisdale and Hironaka 1981, Harris 1967).

Cheatgrass is an annual grass and is able to complete its lifecycle in the spring before the summer dry weather begins. Its complete drying and fine structure make it extremely flammable. Frequent fires actually favor cheatgrass by eliminating competing perennial vegetation. Its seeds survive in the unburned organic material on a site. Rapid growth and vigorous reproduction assure cheatgrass dominance in the post-burn stand.

### **Management Objectives**

Historically, vegetation at HAFO was subject to frequent, low intensity surface fires. The hillsides were dominated by bunch grasses, with Wyoming big sagebrush scattered throughout. Due to fire exclusion and grazing, densities of Wyoming big sagebrush have increased, and overall cover of native grasses has decreased. Past zones of agricultural usage in HAFO have become zones containing invasive exotic species, especially cheatgrass.

Overall fire management objectives for the Wyoming big sagebrush and cheatgrass community types are as follows:

Wyoming Big sagebrush shrubland:

- Reduce average brush density (for all shrub species combined) within a project area by 20-60% within one year postburn.
- Reduce areas, within the perimeter of the project area, containing cheatgrass by 40-60% within five years after initial treatment, using a combination of herbicide and prescribed fire followed by bunchgrass plantings.

### **Monitoring Design**

The monitoring design will be used as described in the National Fire Monitoring Handbook.

### **Monitoring Objective(s)**

A clear understanding of vegetation cover and density for HAFO prior to fire exclusion does not exist. Our management objectives are, therefore, broadly stated and the level of accuracy required to substantiate these results is relatively low.

Overall monitoring objectives for these community types are as follows:

Wyoming Big sagebrush shrubland:

The goal is to be 60% sure of detecting a negative 40% change in the average total brush density of all shrub species, 1 year after the application of prescribed fire. That means there is a 40% chance of saying a change took place when it did not.

Cheat grass:

The goal is to be 60% sure of detecting a negative 40% change in the average cheat grass coverage within the perimeter of the project area five years after the initial treatment. We are willing to accept a 40% chance of saying a change took place when it did not.

### **Sampling Design**

See monitoring type description sheets attached to this plan.

No monitoring plots will be established on bare exposures (less than 20% vegetated), on slopes greater than 60%, or on any areas identified by specialists as having significant resource value (e.g., fossil sites).

### **Field Measurements**

Field methods will be used as outlined in the National Fire Monitoring Handbook without any deviations.

### **Timing of Monitoring**

Plots will be monitored at the peak of flowering season. May and June is the ideal time to monitor vegetation at HAFO. Plots will be monitored as per handbook protocols (immediate, 1, 2, 5, and 10 years postburn) until the plots are burned again.

### **Monitoring Plot Relocation**

An Electronic Marker System will be used to relocate plots. This system, developed by 3M for utilities applications, allows return to a specific location, with the aid of an EMS Electronic Marker Locator and GPS. The GPS will be used to get in the general vicinity of the monitoring plot, and the EMS will allow for exact location, once in the general vicinity.

Markers will be placed 4-10" below surface level, depending upon vegetation and soil constraints. Markers will be located adjacent to the reference stake and end (30m) of each brush transect, where feasible Marker locations will be noted on Plot location datasheets (FMH-5), as actual location may vary due to specific site constraints (e.g., a large rock at the 0m reference point or origin).

A PVC plastic pipe will be inserted into the ground, where the Fire Monitoring Handbook recommends the use of rebar. The PVC would be buried, level with the ground, and covered with a cap (to prevent them from filling with dirt). The PVC will then be uncapped and rebar or wooden dowels inserted when the plot is (re) measured.

The makers of the 4" Ball Marker, 3M, list acceptable temperatures for the marker as –40 to 147 °F. Tests will be conducted to determine what minimum depth the markers need to be buried to ensure resistance to the prescribed fire. Should the Ball Marker get too hot, contents include small amounts of glycol, water, wire, and a small capacitor. The products have been tested by 3M and determined to present no environmental risks.

### **Intended Data Analysis Approach**

Data will be analyzed by running minimum sample size equations after all plots have reached one-year postburn. Dit plots will be used to determine if the data fit a normal distribution or if data are skewed. If normal, a paired t-test will be used to determine if objectives have been met. If the data is skewed a statistician will be contacted for assistance.

Monitoring results will be contrasted with other past fire ecology studies that have taken place within similar vegetation types elsewhere. Studies for these comparisons may include work done by Kauffman et al. (1997) and others.

### **Data Sheet Examples**

See the National Fire Monitoring Handbook.

### **Information Management**

Data will be entered, checked for errors, and managed by the fire effects monitoring staff at North Cascades National Park. Original copies of all data will be kept in the prescribed fire specialist's office at City of Rocks National Monument. Copies of all hard and soft data will be filed in North Cascades fire management office. Data for each year must be made available to HAFO staff by December first of that year.

### **Quality Control and Data Errors**

Quality Control will be a shared responsibility. The following methods will be used to minimize data errors:

Minimizing errors in recording, such as incomplete or uncollected data, are the responsibility of the North Cascades Lead Biological Technician. This person would make sure all data sheets are completely filled out, before leaving the field.

Minimizing the field effects of monitoring, such as trampling is the responsibility of the North Cascades Lead Biological Technician.

Minimizing data entry errors, such as transcription errors, is the responsibility of the North Cascades Lead Biological Technician. Error will be checked before and after the entry of the data every plot.

Ensuring the correct identification of species is the responsibility of the North Cascades Lead Biological Technician in consultation with HAFO staff, and local experts. Voucher specimens will be collected.

Minimizing other field errors, e.g., species that are overlooked or not seen, or data collected at the wrong time of year is the responsibility of the North Cascades Lead Biological Technician.

Quality training for the North Cascades fire effects monitoring crew will be arranged by the North Cascades fire management officer.

Proper interpretation of monitoring design is the responsibility of the regional fire effects monitoring specialist.

All plot locations will be located using a GPS. In addition, accurate documentation of plot locations for ease of relocation will be maintained by the North Cascades Lead Biological Technician.

### **Responsible Party**

This monitoring plan was developed by:

Rick Smedley, Fire Planner, National Park Service, Columbia Cascades Support Office (CCSO) Fire Office

Review of this plan was completed by:

Ken Till, Fire Management Officer, Columbia Cascades Support Office, Pacific West Region, National Park Service

Bob Willhite, Chief Ranger, Hagerman Fossil Beds National Monument, National Park Service.

Paul Reeberg, Fire Effects Monitoring Specialist, Pacific West Region, National Park Service

The following will complete administrative duties:

Plan revisions, park liaison, and data analysis-- Prescribed Fire Specialist, City of Rocks National Monument

Annual Review--Fire Effects Monitoring Specialist, Pacific West Region, National Park Service

Crew supervision--Fire Management Officer, North Cascades National Park

Data collection, data entry, data management, field crew supervision--Lead Biological Technician, North Cascades National Park

### **Funding**

FIREPRO funding will be used for all monitoring activities. General funds for the time and travel for North Cascades monitoring will come from North Cascades budget except travel for

preburn, immediate postburn and year one, and year two monitoring activities. Funding for these visits will come from project funds.

### **Management Implications of Monitoring Results**

The Fire Analysis Committee will review monitoring results each December. The Fire Analysis Committee will determine if the results of previous burns are acceptable. Acceptable results include maintaining or reducing current levels of non-native species (<40% increase in density of any single species, <10% increase of total density of non-native species) and meeting monitoring objectives stated above

If monitoring results show deviations from desired vegetation conditions, or if resource needs change, the committee will determine changes necessary for future activities. These changes might include some or all of the following: altering burning prescriptions, monitoring objectives, and burn unit boundaries; recognizing a need for additional research; and increasing treatment on non-native species.

Monitoring data will be reported to other NPS personnel and in publications, as appropriate.

## **Appendix P (Potential Fire Management Projects)**

## **Potential Fire Management Projects**

Fire management projects for HAFO are designed to accomplish resource management needs. Potential projects fall into three categories, 1) vegetation management, 2) fuels reduction and 3) vegetation management to enhance fuel breaks along thoroughfares in and adjacent to the Monument.

Projects that utilize prescribed burning, as a component of the project will have the appropriate NEPA/NHPA compliance documentation and authorization.

- General vegetation management projects are as follows:
  - 1) Non-Native Vegetation Control: These projects will utilized prescribed fire, in conjunction with herbicides and replanting of preferable species, to reduce the threat of invasive plant species supplanting native species in the Monument with an associated lengthening of the fire return interval for the site after returning to native species.
  - 2) Restore Native Vegetation: These projects would be designed to reestablish early seral conditions in areas where the elimination of wildland fire has allowed unnatural landscape patterns and fuel loadings to persist.
- Fuel break enhancement project:
  - 1) Green Strip Fuel Breaks: This project would enhance green strip fuel breaks within the Monument which have over time become less effective due to the invasion of cheatgrass and brush.

## **Appendix Q (IDAHO STATE AIR QUALITY REFERENCES)**

## Appendix Q

### Idaho State Air Quality References

Outside burning rules are currently managed by each county. State rules are located in Idaho statutes under “AIR 1601.01. (Internet Access “[www2.state.id.us](http://www2.state.id.us)”)

The requirements and procedures of State and Federal entities for Smoke Management within Idaho are outlined in the Montana/Idaho Airshed Group Plan (Implementation Date Fall 1999).

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## **SECTION I INTRODUCTION**

The Montana /Idaho State Airshed Group (Airshed Group) is composed of entities (members) which conduct a “major” amount of prescribed burning in their state, or regulatory and health agencies which regulate this burning. The intent of the Group is to minimize or prevent smoke impacts to communities while using fire to accomplish land management objectives or fuel hazard reduction. This Operating Guide is meant to be a quick, easy reference for anyone who is involved in the Airshed Group or needs information about it. It contains pertinent agreements, guidelines, deadlines, plans and procedures inherent to the continued successful operation of the Airshed Group.

The Airshed Group is composed of three Units: Montana, North Idaho and South Idaho. The Montana Unit (formerly called the Montana State Airshed Group) was formed in 1978. The North Idaho Unit (formerly called the North Idaho State Airshed Group) was formed in 1990. The South Idaho Unit was formed in 1998 and formally joined the operations of Montana and North Idaho in December of 1998. Each unit has a Memorandum of Agreement which describes its Smoke Management Plans and commits its signators to abide by that plan. The three Units also have a joint operating plan which details policy and procedures that members agree to abide by. The operations of the Airshed Group are critical to those plans.

During the fall burning season, a “Monitoring Unit” in Missoula, Montana is the administrative unit that coordinates the prescribed burning activities of these three Units. Airshed Group members abide by the operating procedures of the Monitoring Unit in order to prevent or reduce smoke impacts to communities. Therefore, members must understand their role and that of the Monitoring Unit.

This Operating Guide is divided into six sections:

- I. Introduction
- II. Definitions
- III. Montana/Idaho State Airshed Group Smoke Management Plan(s)
- IV. Memorandums of Agreement
- V. Appendices

Our intent is to make this a “dynamic” document in that all or part of it can be updated as need arises. Therefore each page is dated to track the latest version.

This copy is an “interim” guide. Further revisions and corrections will be made during the winter of 1999 to incorporate the 2000 spring and summer burning programs.

If you have questions or suggestions for improvements, please contact the Chairperson of the Montana/Idaho Executive Board.

## **SECTION II**

## DEFINITIONS

"Airshed" is a geographical area in which atmospheric characteristics are similar e.g. mixing height and transport winds. The Montana/Idaho State Airshed Group has identified twenty-five airsheds for the purpose of operating the program.

"Airshed Committee" means a committee consisting of representatives from the agencies and companies conducting wildland burning within the local airshed, as well as representatives of the local health department and National Weather Service. This committee meets at least once per year to discuss and coordinate issues within their airshed.

"Airshed Coordinator" serves as chair of the Local Airshed Committee and responsible for coordinating all burning by members within the airshed and developing and maintaining the communication system to do so.

"Airshed Group" see Montana/Idaho State Airshed Group

### "Airshed Units"

Montana Airshed Unit:	airsheds 1 - 10
North Idaho Airshed Unit:	airsheds 11 - 13
South Idaho Airshed Unit:	airsheds 14 - 25

Committees consisting of one representative from each signatory entity meet at least once each year to discuss the Airshed Unit smoke management program.

"Airshed Unit Liaison" is the individual who collects, reviews, and disseminates pre and post burn information to the Monitoring Unit. They also facilitate annual Airshed Unit meetings to evaluate program effectiveness, set annual budgets, and solve local issues. They facilitate and complete annual reports, serve as secretary/treasurer of their Airshed Unit, and serve on the Executive Board.

"Burner" Airshed Unit members who burn.

"Class I Area" Clean Air Act classification that protects air quality in international parks, national parks greater than 6,000 acres, and national wildernesses greater than 5,000 acres that existed on August 7, 1977.

"Cooperative Smoke Management Program" is the agreement and program implemented by the Montana/Idaho State Airshed Group.

"Emission Factors" (applies to Montana members only) Emission Factors are based on the EPA's AP-42 Handbook. Emissions rates are stated as "Pounds of emission produced per ton of fuel consumed. There are four major emissions monitored in prescribed burning:

CO: Carbon Monoxide

NO<sub>x</sub>: Nitrogen Oxides

PM-10: Particulate matter 10 microns in diameter or smaller

VOC: Volatile Organic Compounds

Each has a specific emission rate:

CO: 222.5 lbs. produced for each ton of fuel consumed

NOx: 3.63 lbs. produced for each ton of fuel consumed  
PM-10: 12.06 lbs. produced for each ton of fuel consumed  
VOC: 4.0 lbs. produced for each ton of fuel consumed

"Rule of Thumb": Emission rates are based on Tons of Fuel Consumed which is not widely used or measured. The more common is a pre-loading fuel measurement: A general rule of thumb, Tons/acre, for all types of burning is 60% consumption. This can be higher in clean harvester piles and less in broadcast burns with larger fuels, but 60% is a good average. To calculate Tons/acre consumed, multiply the pre-loading measurement by 60%. (.6).

"Executive Board" is charged to manage the business of the interstate Smoke Management program and meets semi-annually, or as required. The Board is composed of Member Representatives, Airshed Unit Liaisons, and Idaho DEQ. Montana DEQ and the Monitoring Unit serve in an advisory capacity on the Board.

"Fire Weather Forecaster" means those National Weather Service personnel who are assigned fire weather forecasting responsibilities.

"Fire Weather Zone" means any of several geographical divisions of Montana and Idaho, which are delineated for the purpose of providing local fire weather forecasts as defined by the National Weather Service.

"Impact Zone" means any area of the State of Montana and Idaho, which the Airshed Group determines to be a smoke sensitive area.

"Inter-State Working Agreement" means the Memorandum of Agreement between the North and South Idaho Airshed Units and the Montana Unit for the services of the Monitoring Unit.

"Major Open Burner" (applies to Montana members only) A major open burner "is any person, institution, business or industry conducting open burning that emits more than 500 tons of carbon monoxide (CO) or 50 tons of any other pollutant...per calendar year" (MT ARM 17.8.601). Under normal forestry conditions, anyone who burns over 250 acres/year is classified as a Major Open Burner. Major Open Burners in Montana must obtain an annual burning permit from Montana DEQ and pay a fee based on amount of emissions produced. Membership in the Montana/Idaho State Airshed Group facilitates obtaining this permit from MT DEQ.

"Member" means any organizational entity (agency or company) who is a signator of the Memorandum of Agreement for the Smoke Mangement Plan in either Montana, North Idaho or South Idaho.

"Member representative" means the individual who represents his or her organizational entity (agency or company) and is responsible for collecting and submitting burn information to the Airshed Unit Liaison for preseason setup and post season accomplishment reporting. They attend the annual meetings of the Airshed Unit and may serve on the Executive Board.

"Monitoring Unit" a unit located in Missoula, Montana, tasked with the responsibility of daily operations, coordinating burn information, providing smoke forecasting and air quality restrictions for the Montana/Idaho Airshed Group.

"Montana/Idaho State Airshed Group" (Airshed Group) means the agencies and industries signing the Montana, North Idaho and South Idaho Cooperative Smoke Management Memorandum of Agreement which implements their applicable Smoke Management Plan.

"Non-attainment Areas" Areas that exceed the National Ambient Air Quality Standards (NAAQS) for certain "criteria" pollutants established by EPA or the States. Standards exist for ozone, carbon monoxide, sulfur dioxides, nitrogen dioxide, lead, and particulate matter.

"Smoke Management Plan" see Cooperative Smoke Management Program

"Reporting Acres"

Acres which are reported as part of a burning list (preseason, daily and annual accomplishment). It should represent the acres from which smoke will be produced, i.e. "Slash generated acres". All non-activity fuel burning will report estimated blackened acres. Examples are:

If a 50 acre unit is 100% lopped and only small landings are burned, only report several acres which represent the landings.

In a 50 acre unit, if 20 acres are lopped and 30 acres are dozer piled, then report 30 acres; the acres which will generate smoke.

In a 50 acre unit, feller bunched and whole tree yarded to landings, report all 50 acres. Even though you are burning landings which are only several acres, the slash on those areas represent 50 acres of slash. (This can be adjusted if tops are returned to the unit.)

## **SECTION III - MONTANA/IDAHO STATE AIRSHED GROUP SMOKE MANAGEMENT PLAN(S)**

### **1. POLICY**

The cooperative effort of all organizations involved in the use of fire for the disposal of logging residue, or for the accomplishment of management objectives is essential for the success of this plan.

Each land management agency/industry and signatory to the Agreement (see Section IV) is responsible for proper smoke management in its area of operations. Each organization will adhere to the airshed groups restriction procedures which enable the Monitoring Unit to reduce burning, stop burning in specific areas or cease burning entirely when meteorological or existing air quality conditions so warrant.

During the months of September through November, the Monitoring Unit is responsible for the daily monitoring of meteorological data, air quality information, and planned forestry burning. It is also responsible for notifying all members, in both states, when acceptable limits of smoke accumulation are threatened or exceeded.

Each member of the State Airshed Unit in Montana is granted an annual air quality permit. However, should a member organization fail to follow any procedures, requirements or restrictions issued under this Plan, it may be considered grounds for revocation of the annual permit, and/or membership in the Montana/Idaho State Airshed Group. The Department of Environmental Quality or a local air pollution control agency may take appropriate action as authorized under existing State or local statutes, rules and regulations for violation of open burning rules and regulations.

### **2. ORGANIZATION**

By virtue of signing the Memorandum of Agreement, each signatory receives full membership in their respective State Airshed Unit and therefore the Montana/Idaho State Airshed Group. The role of the State Airshed Group is to:

- a) Develop policy;
- b) Define standards;
- c) Establish procedures;
- d) Determine appropriate boundaries for airsheds and impact zones;
- e) Provide direction to the Monitoring Unit in carrying out the daily operation of the Plan;

- f) Resolve interairshed, interstate and international smoke problems;
- g) Annually review and evaluate the results of the fall burning season;
- h) Provide smoke management training for member organizations; and
- i) Prepare and disseminate information on open burning.

The organizational structure developed to operate the Smoke Management Program is shown in figure 1.

The Montana/Idaho State Airshed Group is composed of three Units: Montana, North Idaho and South Idaho. For operational purposes, the Units are divided into 25 geographically defined airsheds, that may be further subdivided if necessary. Within each airshed are various field offices of the member organizations who form a local airshed committee. Participation on the committee by non-member organizations and county officials is encouraged. These field offices are the level where final responsibility for actual burning lies. The purpose of the Smoke Management Plan is to provide accurate and reliable guidance and direction to the individuals doing the burning.

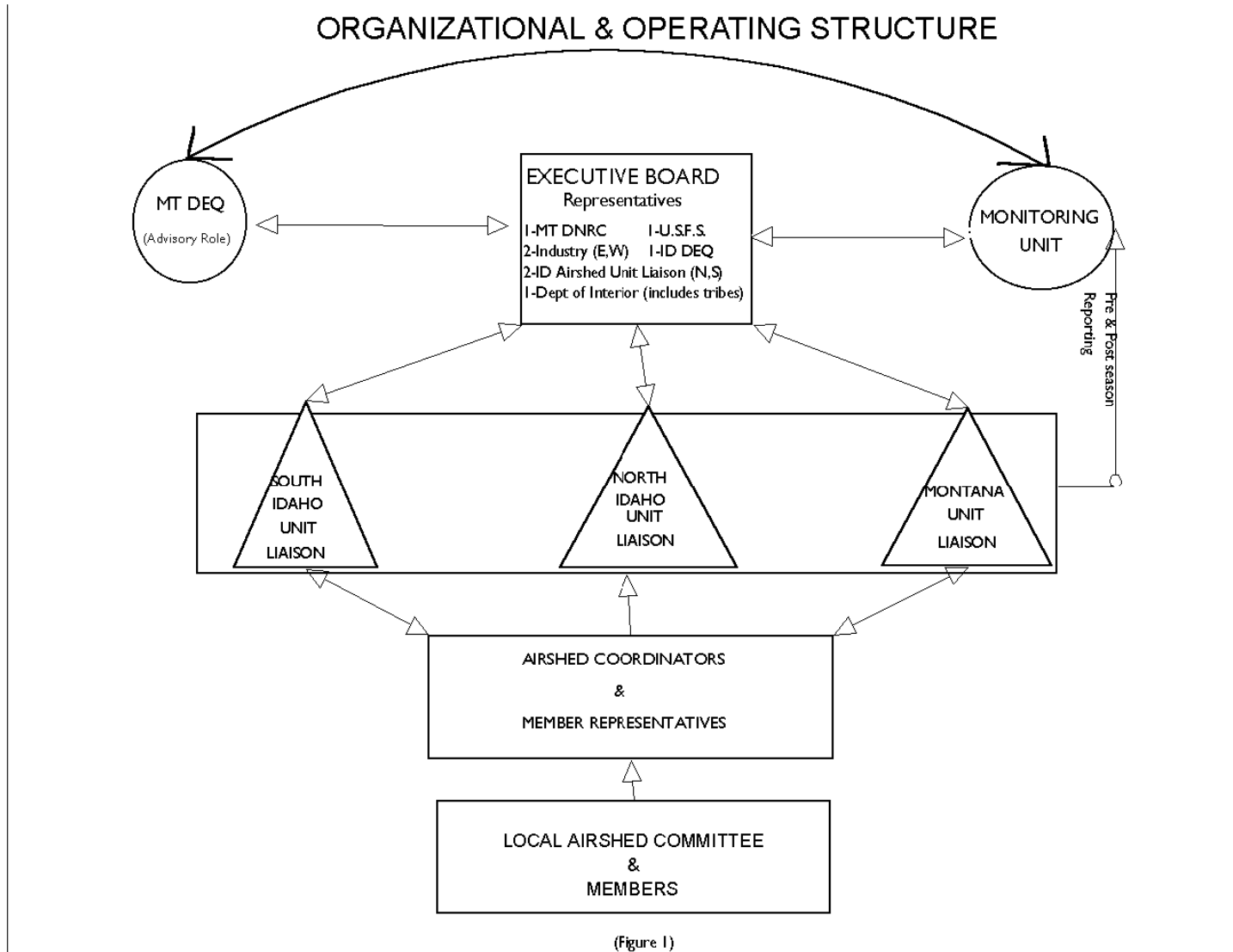
Each of the member organizations have a Member Representative who is responsible for collecting and submitting burn information to the Unit Liaison for pre-season setup and post season accomplishment reporting. This individual also is the point of contact for communicating information within the Airshed Group.

The Unit Liaison is the individual who collects, reviews, and disseminates pre and post season information to the Monitoring Unit for all the members in their Unit. They also facilitate annual Airshed Unit meetings, complete annual reports, serve on the Executive Board, and serve as secretary/treasurer for the Unit.

The Executive Board is charged to manage the business of the Montana/Idaho State Airshed Group including the budget and expenses.

Montana Department of Environmental Quality and the Monitoring Unit advise and interact with the Executive Board to carry out operations. Montana DEQ and the Monitoring Unit interact directly and continuously during the fall burning season. The Monitoring Unit is responsible to the State Airshed Group for the daily operation and management of the Smoke Management Plan. The Monitoring Unit is the decision making body during the fall burning season, and provides the daily coordination and communication necessary to implement burning restrictions.

# ORGANIZATIONAL STRUCTURE



### 3. REPORTING PROCEDURES

#### 3-1. ANNUAL REPORTING (Planned Burning) (See figure 2)

Prior to September of each year, all Member Representatives via the Airshed Unit Liaison provide to the Monitoring Unit a list of all prescribed burns planned for the entire calendar year. This list should be submitted in a form compatible with Lotus Approach 97 and contain the following information for each planned burn:

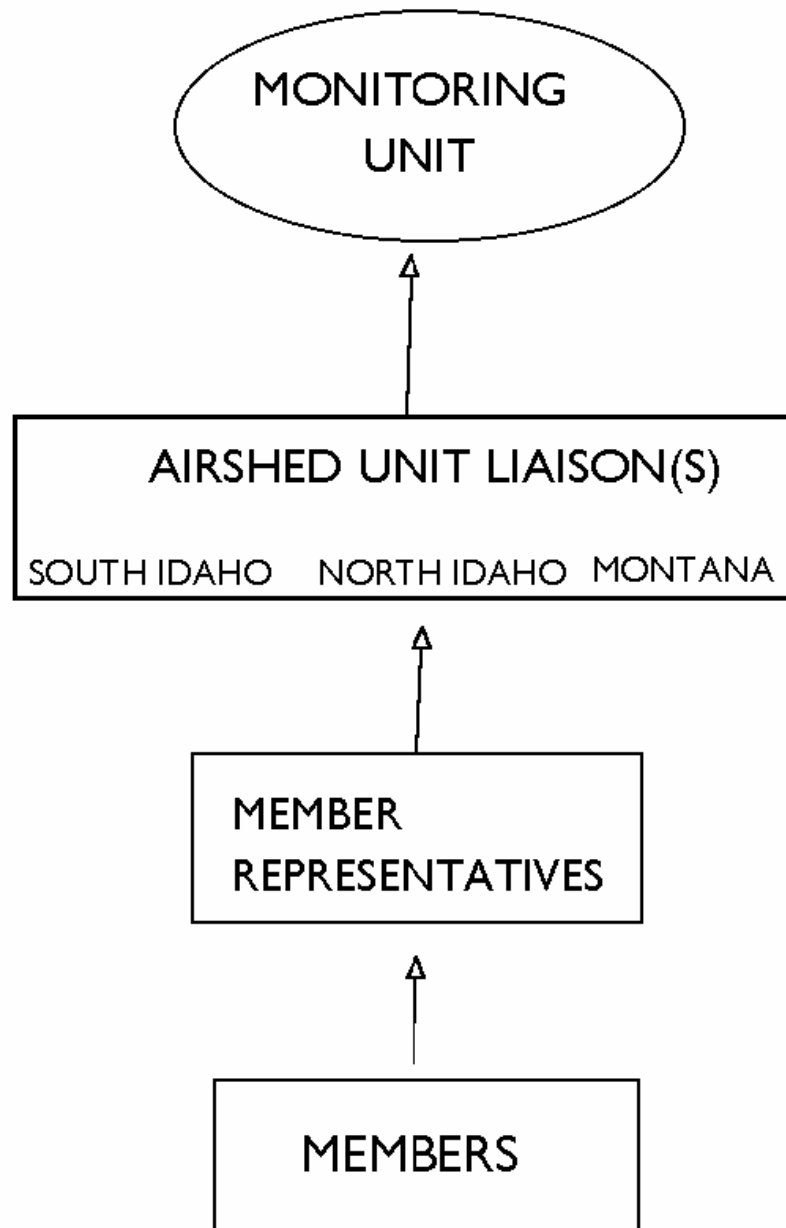
- (1) Identification number (Program Coordinator assigns each member a block of numbers)
- (2) Legal description
- (3) Elevation
- (4) Number of acres
- (5) Estimate of fuel loading (tons/acre) (This data is only required on the end-of-season accomplishment report for Montana members).
- (6) Type of burn (per standard burn type codes)
- (7) Airshed Number
- (8) Impact Zone code

#### 3-2. INTERIM SEASON OPERATIONS

(After September 01, but prior to the start of the Monitoring Unit daily operations.)

Prior to September 1, the Monitoring Unit will contact the three Airshed Unit Liaisons (Montana, north and south Idaho) and selected Member Representatives to determine the amount of burning planned by their members for the first few weeks of September. In a typical year the Monitoring Unit initiates daily operations around the first of September, however, fire hazard conditions, wildfire situations or other circumstances may delay the start of prescribed burning for most members, even though their air quality permit allows it. In this situation, it is impractical for the Monitoring Unit to “officially” start operations as it means every person in the system, from airshed coordinators to balloon operators must “officially” start as well. In other words, it is impractical and inefficient to start the whole infrastructure, if only a few burns are planned by a few members. The following section outlines the procedures to follow after September 1 but prior to startup and outlines criteria to determine the startup date.

# ANNUAL REPORTING FLOWCHART



(Figure 2)

Fig. 2. The flow of burn information for annual planning and accomplishment reporting.

In order to determine when the Monitoring Unit should start up daily operations it is important for the Monitoring Unit to track the amount and location of burns planned for each day. Any members needing to complete prescribed burning must contact their Member representative by 10:00 am each day, and provide them with information regarding their planned acreage(s) and geographic location(s).

The Member representative will contact the Monitoring Unit by noon with the burn information. Airshed Coordinators will be notified of interim season burning in their airsheds on a daily basis as well.

The Monitoring Unit will compile the information from all members and evaluate the forecasted meteorological and air quality conditions. Every afternoon, by close of business, the Monitoring Unit and DEQ representative(s) will review all the above information to determine the need to start the Monitoring Unit. It will officially begin operations if eight (8) or more burns are being consistently conducted, on a daily basis, or if there is a need to issue burning restrictions based on air quality concerns. When the decision is made, the Monitoring Unit will notify all Airshed Coordinators of the date daily reports should start being sent to the Monitoring Unit. Airshed Coordinators will then notify all members in their airshed of the start-up of the daily operations and proper reporting requirements. If necessary, the Monitoring Unit can be functioning by the close of the next working day.

On September 1, or prior to the start-up of the Monitoring Unit, members can assume they are authorized to burn under their existing Air Quality Permit, as long their planned burn lists were submitted to the Monitoring Unit. A new air quality permit will not be issued to Montana members until their fall planned burns lists are submitted to, and approved by, the Monitoring Unit and Montana DEQ. If any restrictions are imposed from the Monitoring Unit and DEQ representative(s), because of air quality concerns, the Monitoring Unit will contact the members via their Member representative/Airshed Coordinator. (Note: this process does not address any restrictions which may be in place due to fire hazard, fire danger, preparedness levels, resources, etc.)

### **3-3. DAILY REPORTING** (see figure 3)

In addition, each Member is required to submit a daily report of planned burning for the next day to the Local Airshed Coordinator. The Coordinators may require a time line for members to submit the daily report. Coordinators compile their report(s) from all members who called in and forward their report to the Monitoring Unit via the Internet. This report must reach the Monitoring Unit by 11:00 a.m. each day, and should include the following:

- (1) Specific identification numbers of burns planned for the following day within impact zones;
- (2) Number of acres and number of burns planned for the following day within the airshed, but outside of the impact zone(s);

- (3) Identification numbers for burns planned for Saturday, Sunday, and Monday (including Monday Holidays) must be submitted on Friday's morning report.

The report should be posted to the appropriate airshed on the Internet webpage by each airshed coordinator.

Each morning (Monday-Friday), several weather balloons (PIBALS with temperature sonde) will be used to obtain an upper air sounding at selected cities in western Montana and at 5 locations in Idaho. The resulting temperature and wind information will be plotted by the Monitoring Unit and then relayed to requesting National Weather Service offices.

### **3-3a METEOROLOGICAL CONDITIONS**

The National Weather Service will compile all available meteorological data and issue an updated management forecast each day at approximately 9:00 a.m., and a forecast for the following day at approximately 3:30 p.m. These dispersal forecasts shall be referenced to existing fire weather zones (Appendix C), and are available on appropriate National Weather Service websites.

Members may also work directly with National Weather Service Fire Weather Forecasters to obtain spot weather forecasts for specific burns.

### **3-3b EXISTING AIR QUALITY**

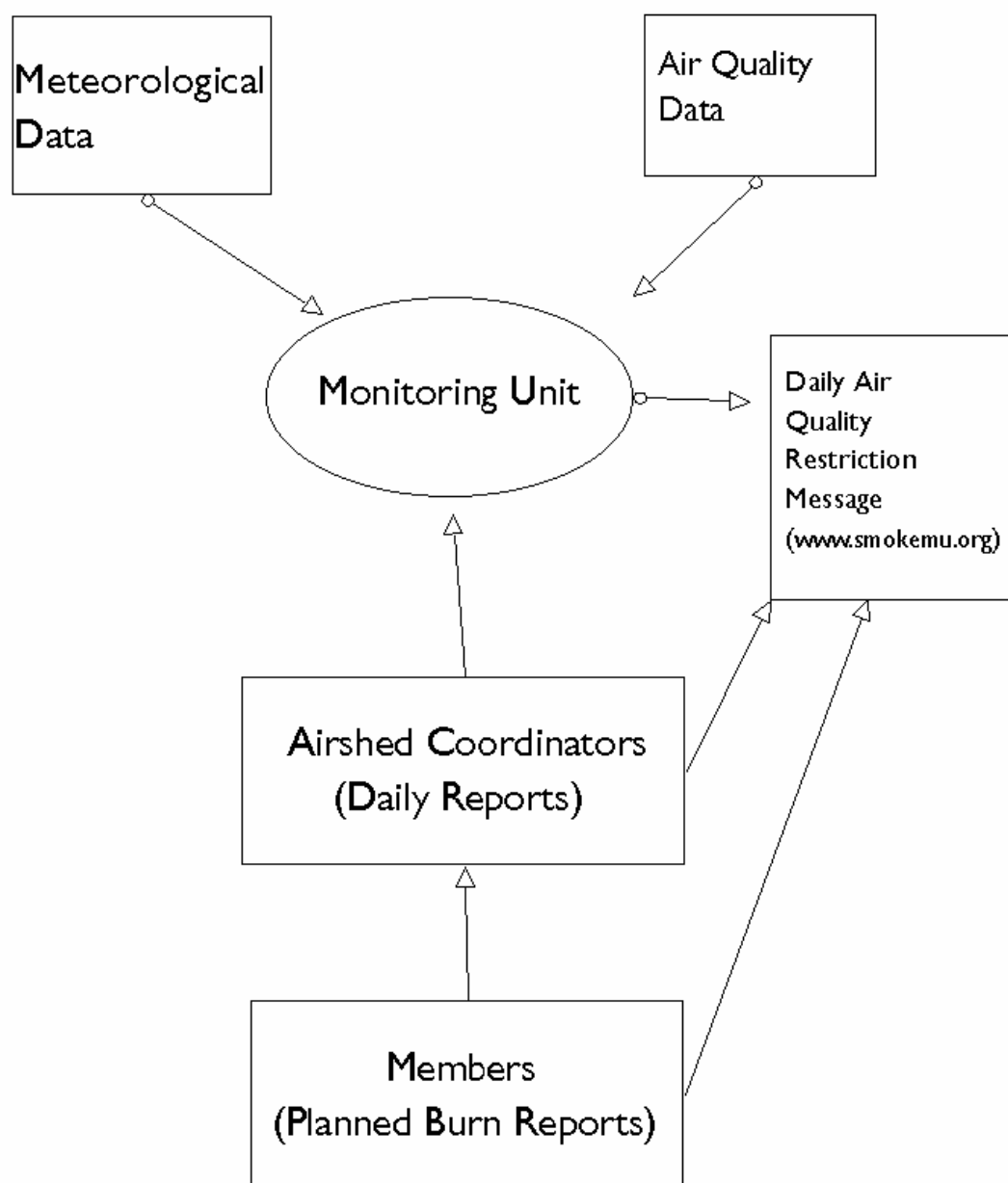
The Monitoring Unit shall consider existing air quality conditions and other local data in each airshed when determining the need for burning restrictions. The expected amount of residual smoke from previous days' burning is evaluated along with meteorological information, NWS forecasts and associated data and PIBAL balloon run data.

### **3-3c RESTRICTIONS TO BURNING**

Upon analysis of all available information concerning planned burning, forecast meteorological conditions and existing air quality, the Monitoring Unit shall decide whether any restrictions to burning are necessary for the following day. Restrictions can be as follows:

- a) Statewide;
- b) By individual airshed(s);
- c) By elevation within an airshed(s);
- d) By individual burn number;
- e) By Impact Zone;
- f) By time periods;
- g) By DEQ authority
- h) Any combination of the above

## DAILY REPORTING FLOWCHART



(Figure 3)

Fig. 3 The daily flow of information during the fall burning season.

The Monitoring Unit shall notify all Airshed Coordinator(s) by 4:00 p.m. MTD (local Montana time), if any restrictions are to be in effect for the following day. If no restrictions are to be in effect for the following day, a "no restrictions" message will also be broadcast by 4 p.m. MTD. All members in both states are responsible for acquiring the current restriction/no restriction message from the Airshed Group's webpage at [www.smokemu.org](http://www.smokemu.org). Individual member agencies and industries are totally responsible to ensure that all burning crews are aware of restrictions.

All restrictions are in effect for the time period indicated on the daily message (normally 24 hours). Restrictions for weekends (issued on Friday) will indicate the effective time period. If it is necessary to extend restrictions for a second or subsequent day, the Monitoring Unit must reissue them using the procedures described above. If a Member is not notified of a restriction by 4:00 p.m. PDT, it is his/her responsibility to call the Airshed Coordinator to determine if burning is authorized for the following day. If a member is unable to access the Internet he or she may call the toll-free number to obtain the same information. **The toll-free number in Montana is (800) 225-6779 and in North Idaho is (800) 633-6247. South Idaho has two numbers to obtain the same information, (208)373-0313 (Boise), and (208) 236-6173 (Pocatello).**

**The final responsibility for ignition rests with the cooperating member agency or company.** Members are expected to curtail burning if, in their opinion, they are not getting adequate smoke dispersion, or if local weather factors are such that smoke problems could result. Conversely, if local weather conditions appear to be more favorable for burning than what was forecast, burners may contact the appropriate Airshed Coordinator to request an exception to the restriction. The Airshed Coordinator shall consult with the Monitoring Unit. If deemed appropriate, the Monitoring Unit may then grant an exception to the restriction. An updated restriction message will be posted to the homepage if an exception or change to a restriction message is made or approved.

### 3-4 ACCOMPLISHMENT REPORTING

Prior to the last day of January (after the fall burning season), Member Representatives will compile and submit to the Monitoring Unit a final listing by burn number of all prescribed burns accomplished during the calendar year. The accomplishment report must contain the dates on which the burns were accomplished, the total acres burned, and the tons/acre (MT members only) of fuel consumed on each burn unit. The Monitoring Unit will compile and distribute a final accomplishment report for the full membership at the annual meeting(s).

#### **4. ESSENTIAL WINTER BURNING BY MEMBERS OF THE MONTANA SMOKE MANAGEMENT PROGRAM**

Montana Department of Environmental Quality regulations regarding essential prescribed wildland open burning during the winter (December-February) are quoted below:

ARM 17.8.605    Special Open Burning Periods

(1) Prescribed wildland open burning..... may be conducted during the entire year.

ARM 17.8.610    Major Open Burning Source Requirements

(2) Receive and adhere to any conditions in any air quality permit issued to it by the department...

The above regulations are in effect because open burning during winter months can result in poor smoke dispersion. But, on infrequent occasions, forestry interests in the state find it necessary to do some open burning related to disposition of slash and hazard reduction. **The allowable burning is considered “Essential Winter Burning” and consists of prescribed burns that can not be performed at other times of the year, particularly in eastern Montana. It is not to be used to continue or extend the fall burning season. Signatory members accept the responsibility for scheduling these burns so as not to result in objectionable or excessive smoke accumulation.**

It is necessary that planned burns during winter be documented. As the responsible state agency for regulating open burning and responding to any, or all public, complaints the Department of Environmental Quality requires that information be recorded so that a post mortem can be conducted in the event that complaints are received from the public or enforcement action is required. As a minimum, important information to be documented includes:

1. Assigned State Airshed Group number (stag #) for each burn
2. Legal location of burn
3. Size of burn
4. Type of burn (e.g., road clearing, piles, pit burning)
5. Fuel load
6. Elevation of burn
7. Brief (a few sentences or 1 paragraph) explanation detailing why this is an essential winter burn. (Justification can be for individual burns or for a group of burns if applicable.)

If an agency or industry plans to conduct winter burns a planned burn list must be submitted to the Monitoring Unit, no later than November 01. The list will be screened and approved both by the Program Coordinator and by the DEQ. Each member representative that submitted winter burns will be notified if their planned burns have been approved.

Arrangements will be made with the NWS forecasters at Missoula and Billings to describe smoke dispersion conditions in the usual terms that have traditionally been used: poor, fair, good

or excellent. **Burns will be conducted only when good or excellent dispersion conditions are indicated.** National Weather Service forecasters will provide wind speed and direction estimates for the burn, an estimate of mixing heights, and residual smoke behavior on the night following the burn. Their adjective forecast for smoke dispersion will, of course, integrate all pertinent weather information such as the timing of expected weather changes that may affect smoke dispersion.

The information requirements and conditions under which burning may take place will be spelled out in the members' annual open burning permits.

The scheduling of the burns will be the responsibility of the appropriate land manager (member) and any enforcement action will be taken against the permit holder (i.e., smoke management member).

## **5. MONTANA/IDAHO STATE AIRSHED GROUP**

### **MEMBERSHIP GUIDELINES**

#### **I. Membership Criteria**

##### **A. Statewide Membership Criteria**

1. All state airshed members as of July 1, 1984, are permanent members.
2. New members must be either landowners or agencies charged with the responsibility of managing public lands or involved in air pollution control efforts.
3. New members must own or manage over 5,000 acres and must use fire as a management tool on these lands as an ongoing program.
4. An individual from the member organization must be appointed to represent the organization at the annual meeting.
5. Members should attend regular and special meetings as they are called.
6. Members should be available to become involved with committee assignments.
7. Organization representatives are responsible for educating and disseminating smoke management and air quality information to the member organization. Also, representatives should ensure that their organization participates at the local airshed level.
8. Promote good smoke management practices.

##### **B. Local Airshed Membership Criteria**

1. Coordinate local burning through the local airshed coordinator.
2. Attend annual local airshed meeting.
3. Abide by airshed restrictions.
4. Provide pre-burn and accomplishment information as requested.
5. Exercise good smoke management practices.
6. Members may need to obtain a local air quality permit (for some counties in Montana)

Drafted July 1984

Updated February 1997

## **6. COMPLAINT PROCEDURES**

Standard procedures are to be followed by any member of the Montana/Idaho Airshed Group when a complaint is received. The nature of the complaint will determine what procedure is to be followed to address the complainant. Every attempt should be made to resolve the complaint at the lowest possible level. Any member receiving complaints should handle the initial situation if they are knowledgeable of the Montana/Idaho Smoke Management Program. Complaints should not be automatically forwarded to some higher level of the organization.

Complaints can come in several forms. Historically, complaints have been received from the public at large where the basis for the complaint is an objection to seeing smoke. Local explanation of the program and resolution of the callers concerns will often solve the problem.

The member receiving the call should attempt to explain the purpose and basis for the Smoke Management Program in order to inform the caller that a control program is in place in Montana and Idaho. Many callers are simply unaware that a Smoke Management program is functioning in the state. Every effort should be made to determine the caller's name, address and phone number. This information should be forwarded to the proper Airshed Coordinator, who should attempt follow up to the complainant if necessary.

Complaints have also been received over the years that revolve around a specific prescribed burn. Any member receiving this type of call must make every effort to determine as much information about the burn as possible in order for proper follow-up to take place. The following information needs to be determined in order for the organization to take proper and necessary follow up actions. Information to be collected includes:

1. Name and phone number of the caller
2. Exact location of the burn (Section, Township and Range if possible.)
3. Name of the burner if known
4. Time of day
5. Any other comments that will aid in the follow up process.

This information should immediately be forwarded to the appropriate Airshed Coordinator. In every case the person receiving the call should attempt to explain the control program to the caller. Once an Airshed Coordinator receives complaint information he/she should determine whether a follow up phone call to the individual is required. A quick check should be made to see if restrictions are in place in the area of the burn. If restrictions are in place the airshed coordinator should immediately call the Monitoring Unit in Missoula and relay all known information about the burn.

If a complaint is received by the Monitoring Unit, in which a **member** conducted a prescribed burn during a restricted period, the Monitoring Unit will contact the members Agency or Industry member representative. The representative must make a complete investigation into the situation and report his/her findings back to the Monitoring Unit. The Monitoring Unit will then determine whether the problem is resolved or whether the complaint information should be forwarded to the state DEQ. In such a case, the Department of Environmental Quality (DEQ) may take appropriate action as authorized under existing state statutes, rules and regulations.

Many complaints involve a prescribed burn during a restricted period that was **not** conducted by a member. This complaint information is to be forwarded from the person receiving the call to the Airshed Coordinator, then to the Monitoring Unit, who will in turn forward it to DEQ for appropriate action.

Complaints received directly by DEQ in Helena or Boise should be handled in the same manner as described above. DEQ will forward all complaints to the Monitoring Unit for resolution if the complaint information suggests that a member conducted a prescribed burn during a restricted period. **DEQ toll-free number in Montana is (800) 225-6779 and in North Idaho is (800) 633-6247. South Idaho has two numbers that receive the same information, (208)373-0313 (Boise), and (208) 236-6173 (Pocatello).**

The Monitoring Unit will maintain a log of all complaints received. For each complaint received, pertinent data will be recorded along with the final resolution or actions taken to

address the complaint. This log will be forwarded to the DEQ representative when requested and at the end of the burning season.

## **7. MAJOR DUTIES**

### **7-1 AIRSHED COORDINATORS**

### **7-2 AIRSHED UNIT LIAISON**

### **7-3 EXECUTIVE BOARD**

### **7-4 MEMBER REPRESENTATIVES**

#### **7-1. AIRSHED COORDINATORS**

Each of the 17 Local Airshed Coordinators handles local coordination, local problem solving and local communication within their respective airsheds. Specific duties include:

1. Compile and maintain a telephone or electronic mailing list of all members in the airshed.
2. Attend annual meetings of the airshed group.
3. Collect, format and submit daily planned burning report to the Monitoring Unit not later than 11:00 hours each day during the fall Smoke Management season. This report is to be submitted daily (Monday through Friday) and will include:
  - a. Number of burns and total number of acres to be burned that day and the next day within the airshed.
  - b. All assigned airshed group numbers for any burns to be conducted within any Impact Zone within the airshed.
  - c. On Fridays, report planned burning in the airshed for that day, Saturday, Sunday, and Monday.
4. Daily acquire via the Montana/Idaho State Airshed Group website the daily restriction message. It is each burner's (members) responsibility to obtain the restriction/no restriction message via the Internet Smoke Management Homepage or DEQ Hotline.
5. Answer questions and inquiries concerning smoke management program from the public and from members.
6. Report any problems and/or complaints from members or the public to the Program Coordinator.
7. Annually, prior to the start of the Monitoring Unit, plan and conduct a local airshed meeting to discuss with all members operating within the airshed the procedures and requirements for the upcoming burning season.

#### **7-2. AIRSHED UNIT LIAISON**

An individual from each of the three State Airshed Units responsible for, 1) collecting, reviewing, and disseminating pre and post burn information to the Monitoring Unit, 2) facilitating annual State airshed meetings to evaluate the program effectiveness, set annual budgets, and solve local issues, 3) facilitating and completing annual report(s), and (4) serving as secretary/treasurer to keep records and monitor expenses of their Airshed Unit.

#### **7-3. EXECUTIVE BOARD**

The Executive Board (aka: E-Board) of the Montana/Idaho State Airshed Group was formed with the concurrence of the entire membership at the annual 1995 winter meeting. The Board is composed of the following seven members:

- 1 - Montana DNRC representative
- 1 - U.S.F.S. representative
- 2 - Representatives from private industry
- 1 - Department of Interior representative
- 1 - Montana Department of Environmental Quality representative
- 1 - Liaison of the North Idaho Airshed Unit
- 1 - Liaison of the South Idaho Airshed Unit
- 1 - Idaho Division of Environmental Quality

The E-Board will meet semi-annually, or as required, and is charged to manage the business of the interstate Smoke Management program.

#### EXECUTIVE BOARD COMMITTEE

The Executive Committee shall be composed of two **(2) Co-Chairpersons** (one representing Montana members and one representing Idaho members), two **(2) Co-Vice-Chairs** (same) and a **Secretary/Treasurer**. The chairperson(s) position shall rotate annually from the Chairperson to the Vice-chair(s).

#### **7-4. MEMBER REPRESENTATIVES**

1. Keep agency employees informed and in compliance with the requirements and procedures of the interagency/interstate Smoke Management program.
2. Attend annual and special meeting of the respective State Airshed Unit, or Montana/Idaho State Airshed Group, as required.
3. Collect, proofread, and review for completeness and submit planned burning lists to Monitoring Unit, on or about August 15th. This list should be a complete planned burning list for the entire calendar year. It is the appointed representatives responsibility to insure their agency/company planned burn list is accurate, complete and all errors or missing data has been corrected or acquired before submitting to the appropriate Unit Coordinator.
4. Collect, proofread, and review for completeness and submit Member representative planned winter burning to Monitoring Unit by November 1 of each year. (Montana group representative only) It is the Member representatives responsibility to insure that their agency/company planned burn list is accurate, complete and all errors or missing data has been acquired before submitting to the Monitoring Unit.
5. Serve on the Executive Board and special committees as required.

**8. Operating Procedures**  
**of the**  
**MONITORING UNIT**  
**of the**  
**Montana/Idaho Airshed Group**

Prepared by  
Executive Board  
August 1999

# **MONTANA/IDAHO AIRSHED GROUP**

## **Operating Procedures of the Monitoring Unit**

### **1. COMPOSITION OF THE UNIT**

- A. Two Persons (Until January 2000, then one Meteorologist/Coordinator)
  - 1. Meteorologist - DEQ
  - 2. Program Coordinator
- B. Location
  - 1. Aerial Fire Depot, Fire Cache Office, 5765 West Broadway Street, Missoula, MT.
- C. Approximate Dates of Operation
  - 1. Generally does not begin until the end of the Wildfire season when the anticipated prescribed burning workload starts to increase or meteorological conditions dictate. The operational program continues through the last day of November each fall.

### **2. PURPOSE OF THE UNIT**

- A. To regulate fall prescribed burning by participating members of the Montana/Idaho Smoke Management Program to minimize smoke accumulation.
- B. Through the Montana/Idaho members and airshed coordinators, monitor on-going prescribed burning to ascertain and encourage compliance.
- C. To record and document information pertinent to prescribed burning that leads to improved future operations and a better understanding of smoke accumulation problems and cures.

### **3. INTERIM SEASON PREPARATIONS BY THE MONITORING UNIT**

- A. Coordinator Duties:
  - 1. Collect planned seasonal burn lists from all participating members, review for completeness and enter into Smoke Management computerized database.
  - 2. Advise airshed coordinators to hold local meetings before operational fall program starts to ensure that the program is understood and communications are established to disseminate restrictions.
  - 3. Contact Weather Service Offices (Missoula, Billings and Boise) to review program and to establish starting dates for ventilation analyses and dispersion forecasts by National Weather Service fire-weather forecasters.
- B. Meteorology Duties:

1. Coordinate with Department(s) of Environmental Quality to establish or re-establish the meteorological support program consisting of daily (Monday-Friday) upper-air wind and temperature data from balloon soundings.
2. Train observers.
  - a. T-sondes at Missoula, Kalispell, Libby and Butte.
  - b. T-sondes at Grangeville and Priest Lake, Idaho.
  - c. T-sondes at 3 locations in southern Idaho (Locations to be determined)
3. Set up office: QWIP, phone, plotting board, computer etc. in the Meteorology office. (Location for fall 1999 to be determined.)

#### 4. METEOROLOGICAL SUPPORT STATIONS

A. Members and contractors provide weather observations from balloon runs at Butte, Libby, Missoula, and Kalispell in Montana and at Grangeville, Priest Lake and 3 new locations in southern Idaho. (Locations to be determined).

##### B. Locations

1. Missoula - Aerial Fire Depot on West Broadway Street.
2. Kalispell - Site near Glacier International Airport north of city.
3. Libby - Kootenai National Forest Headquarters in city.
4. Butte - Bureau of Land Management employees Association at BLM Office in Industrial Park a few miles south of Butte.
5. Airport in Grangeville, Idaho.
6. Priest Lake Ranger Station, Priest Lake, Idaho.
7. 3 Locations in southern Idaho to be determined.

##### C. Operational Program

1. Balloons sent aloft around sunrise at each location.
2. Raw data (30-second readings of azimuth and elevation angles and each minute of temperature) transmitted to the monitoring unit upon completion. Balloon followed until lost or for 20 minutes, whichever occurs first.
3. No balloon runs are taken if precipitation is falling but the run is still taken when ground fog is present to obtain a temperature profile.
4. Balloon run data is plotted and reduced to a coded message at the monitoring unit and transmitted to requesting NWS offices.

## 5. IMPOSING BURNING RESTRICTIONS

### A. Use of NWS Meteorological Support

1. Smoke Dispersion Forecasts are issued about 9:30 a.m. by Missoula and Billings NWS offices for Montana fire-weather zones. These forecasts are available twice daily during the fire season and into the fall burning period.
  - a. Fire weather forecasts issued about 9:30 a.m. and 3:30 p.m. for Montana zones in the fall.
  - b. These products distributed over NWS homepages on the Internet.
2. Monitoring Unit Meteorologist and NWS Missoula forecasters review existing and forecast meteorological conditions for tomorrow about 2:30 p.m. each day during the week. This review takes place at the NWS Missoula Office at the County Airport.

### B. Use of Proposed Burn Acreage and planned burning and Location for Tomorrow.

1. These estimates are received at the Monitoring Unit office no later than 11:00 a.m. via the Smoke Management homepage on the Internet or by telephone.
2. Data is tabulated by location, acreage, elevation, type of burn, etc.
3. About 3:00 p.m. these proposed burns are considered along with expected ventilation or smoke dispersion conditions and existing air quality to determine the need for imposing burning restrictions for tomorrow.

### C. Issuance of Restrictions

1. By 4:00 p.m. a restriction message listing airsheds and elevations affected is relayed to airshed coordinators.
2. The Friday 4:00 p.m. restriction message usually covers both Saturday and Sunday and any Monday holidays.
3. Burning restrictions are recorded on the toll-free number.
4. Airshed coordinators are always notified of burning restrictions for the next day, even if none are planned.

## 6. TYPICAL DAILY OPERATIONS AT THE MONITORING UNIT

### A. Coordinator

1. Collect and tabulate burn data

- a. Planned today
    - b. Planned tomorrow
  - 2. Answer phone inquiries and gather intelligence from cooperators and others who have smoke dispersion information and/or questions about on-going burns or restrictions.
  - 3. Review restrictions (usually from about 3:00 p.m. to 3:30 p.m.) with meteorologist after he/she returns from NWS Office at the Airport.
- B. Meteorologist (morning)
- 1. Arrive at office about sunrise to prepare for launch of balloon about 30 minutes later.
  - 2. Complete balloon (with temp/cent.) run.
  - 3. Reduce incoming balloon run data received by FAX.
  - 4. Transmit the reduced upper-air wind and temperature data to the NWS offices via NWS AFOS System.
  - 5. Receives TEOM data from DEQ by 10:00 a.m.
  - 6. Review the 9:30 a.m. ventilation analyses and smoke dispersion forecasts from NWS offices.
- C. Meteorologist (afternoon), usually from about 1:30 p.m. to 4:00 p.m.
- 1. Check incoming burn reports (today's and tomorrow's planned burns) and check any messages or reports from airshed coordinators or those conducting prescribed burns.
  - 2. Visit the NWS office at the Missoula County Airport to review the most recent meteorological data and discuss need for burning restrictions for tomorrow. Return to the Monitoring Unit.
  - 3. Coordinate with the forester representative to determine if and where restrictions should be imposed for tomorrow.
  - 4. If restrictions are necessary, write the notice of restrictions and post on the Smoke Management Internet Homepage not later than 4:00 p.m. Montana Standard Time.
- D. Meteorologist (weekends)
- 1. Visit NWS Office at Missoula, or by telephone, to compare Friday's estimate of Sunday's need for restrictions to the NWS Saturday forecast.

2. Visit NWS Office at Missoula on Sunday afternoon if it appears that burning restrictions for Monday may be appropriate.
3. Issue burning restrictions for Monday, if necessary, and notify members via the Smoke Management Internet Homepage and the hot-line

## **SECTION IV - MEMORANDUM OF AGREEMENTS**

### **1. MONTANA SMOKE MANAGEMENT MEMORANDUM OF AGREEMENT**

This Agreement is entered into effective July 31, 1978. The agencies and companies which are signatories to this Agreement hereby agree to abide by the Smoke Management Plan for Montana attached hereto. As each agency and company signs this Agreement, they shall automatically become a member of the State Airshed Group described herein. Other agencies and companies may from time to time become a party to this Agreement and a member of the State Airshed Group by signing this agreement and submitting a copy to each of the other signatories. Prospective members must meet membership requirements established by the State Airshed Group (membership requirements on file with Monitoring Unit). The signatories hereto are dedicated to the preservation of air quality in Montana. However, the continuing importance of prescribed burning for removal of logging residue to assure protection and regeneration of forest areas and for other accepted forest practices, such as wildlife habitat improvement, is recognized. The objectives of this Agreement are as follows:

1. To minimize or prevent the accumulation of smoke in Montana to such degree as is necessary to protect State and federal ambient air quality standards when prescribed burning is necessary for the conduct of accepted forest practices such as hazard reduction, regeneration and wildlife habitat improvement. The development of alternative methods shall be encouraged when such methods are practical.
2. To develop a smoke management plan for reporting and coordinating burning operations on all forest and range lands in the State. Guidelines in the plan will be based upon the principles of and technical information currently available on smoke dispersion and on State and federal air quality regulations. A copy of the Smoke Management Plan is attached and incorporated herein by reference. The Smoke Management Plan shall be reviewed periodically and changes may be made with the approval of all signatories or their designated representative. Such approval shall be given in writing.
3. To evaluate the program, review the Agreement and improve the Smoke Management Plan where feasible.

Any signatory hereto may withdraw from this agreement upon thirty (30) days written notice to the Executive Committee.

Agreed to by MONTANA SMOKE MANAGEMENT AGREEMENT signatories:

<hr/> Administrator, Department of Environmental Quality	Date	Area Director (BIA)	Date
Regional Forester, R-1 (USFS)	Date	<hr/> Administrator, Division of Forestry Dept. of Natural Resources and Conservation	Date
State Director,(BLM)	Date	Plum Creek Timber Co., Inc.	Date
Superintendent, Glacier National Park Date	Date	<hr/> Big Sky Lumber Company	
<hr/> Director, National Weather Service, Western Region	Date	<hr/> Director, Department of Fish, Wildlife and Parks	Date
Superintendent, Yellowstone National Park	Date	<hr/> Area Manager, U.S. Department of Fish & Wildlife Service	Date
Chairman, Missoula City-County Air Pollution Control Board	Date	<hr/> Pyramid Mountain Lumber	Date
Darby Lumber	Date	<hr/> Louisiana Pacific	Date
Stone Container Corporation	Date	<hr/> Stoltze Land & Lumber Company	Date
<hr/> R-Y Timber, Inc.	Date		

**2. NORTH IDAHO SMOKE MANAGEMENT**  
**MEMORANDUM OF AGREEMENT**  
**JUNE 1990**

This agreement is entered into effective September 7, 1990. The agencies and companies which are signatories to this agreement hereby agree to abide by the Cooperative Smoke Management Plan for north Idaho attached hereto. As each agency and company signs this agreement, they shall automatically become a member of the North Idaho Airshed Group described herein. Other agencies and companies may from time to time become a party to this agreement and a member of the North Idaho Airshed Group by signing this agreement and submitting a copy to each of the other signatories. Prospective members must meet membership requirements established by the North Idaho Airshed Group. The signatories hereto are dedicated to the preservation of air quality in North Idaho. However, the continuing importance of prescribed burning for removal of logging residue to assure protection and regeneration of forest areas and for other accepted forest practices, such as wildlife habitat improvement, is recognized.

The objectives of this Agreement are as follows:

1. To minimize or prevent the accumulation of smoke in Idaho to such degree as is necessary to protect State and federal ambient air quality standards when prescribed burning is necessary for the conduct of accepted forest practices such as hazard reduction, regeneration and wildlife habitat improvement. The development of alternative methods shall be encouraged when such methods are practical.
2. To develop a smoke management plan for reporting and coordinating burning operations on all forest and range lands in the state. Guidelines in the plan will be based upon the principles of and technical information currently available on smoke dispersion and on State and federal air quality regulations. A copy of the Smoke Management Plan is attached and incorporated herein by reference. The Smoke Management Plan shall be reviewed periodically and changes may be made with the approval of all signatories or their designated representative. Such approval shall be given in writing.
3. At the end of each burning year, evaluate the program, review the agreement and improve the Smoke Management Plan where feasible.
4. To enter into an agreement with the Montana State Airshed Group to jointly use the Smoke Management Monitoring Unit, located in Missoula, Montana, for the implementation of the North Idaho Cooperative Smoke Management Plan. This interim agreement will allow the North Idaho Airshed Group the flexibility to evaluate the program and make necessary changes to insure adequate program requirements are being met for the operation of the North Idaho Cooperative Smoke Management Plan. This gives the option to the North Idaho Airshed Group, after evaluation, to establish their own monitoring unit if deemed necessary.

Any signatory hereto may withdraw from this agreement upon thirty (30) days written notice to the North Idaho Airshed Group in care of the Idaho Department of Health and Welfare, Division of Environmental Quality, Air Quality Bureau. Agreed to by NORTH IDAHO SMOKE MANAGEMENT AGREEMENT signatories:

Director,  
Dept. Of Health & Welfare, DEQ

Area Director  
Bureau of Indian Affairs

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Regional Forester  
US Forest Service, R-1

Director,  
Idaho Dept. Of Lands

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State Director,  
Bureau of Land Management

Plum Creek Timber Co.

---

Director,  
National Weather Service  
Western Region

Director,  
State of Idaho  
Department of Fish & Game

---

DAW Forest Products

Vice President  
Potlatch Corporation, Western Division

Inland Empire Paper

Dean, University of Idaho College of For.,  
WL., & Range Sciences

---

Louisiana Pacific Corp.

U.S. Army Corps of Engineers

Stimson Lumber

**3. SOUTH IDAHO SMOKE MANAGEMENT**  
**MEMORANDUM OF AGREEMENT**  
**FOR FOREST AND RANGE PRESCRIBED BURNING**

This agreement is entered into effective February 01, 1999. The agencies and companies that are signatories to this agreement hereby agree to abide by the Draft Cooperative Smoke Management Plan for south Idaho attached hereto. As each agency and company sign this agreement they shall automatically become a member of the South Idaho Airshed Group (Unit) described herein. Other agencies and companies may from time to time become a party to this agreement and a member of the south Idaho Airshed Group (Unit) by signing this agreement and submitting a copy to each of the other signatories.

Prospective members must meet membership requirements established by the South Idaho Airshed Group (Unit) (membership requirements on file with the Monitoring Unit). The signatories hereto are dedicated to the protection of air quality in south Idaho. However, the continuing importance of prescribed burning for removal of fuel to assure protection and regeneration of forest areas and for other accepted management practices, such as wildlife habitat improvement, hazard fuel reduction, and ecosystem health is recognized. The objectives of this agreement are as follows:

1. To minimize or prevent the accumulation of smoke in Idaho to such a degree deemed as necessary to meet state and federal ambient air quality standards when prescribed burning is necessary to conduct accepted management practices such as hazard reduction, regeneration, and wildlife habitat improvement. The development of alternative methods shall be encouraged when such methods are practical.
2. To develop a smoke management plan for reporting and coordinating burning operations on all forest and range lands in the state. Guidelines in the plan will be based upon the principles of and technical information currently available on smoke dispersion and on state and federal air quality regulations. A copy of the Draft Cooperative smoke Management Plan is attached and incorporated herein by reference. The plan shall be reviewed periodically and changes may be made with approval of all signatories or their designated representative. Such approval shall be given in writing.
3. At the end of each burning year, evaluate the program, review the agreement and improve the Cooperative Smoke Management Plan where feasible.
4. To enter into an agreement with the Montana State Airshed Group to jointly use the Smoke Management Monitoring Unit, located in Missoula, Montana, for the implementation of the south Idaho Cooperative smoke Management Plan. This interim agreement will allow the south Idaho Airshed Group the flexibility to evaluate the program and make necessary changes to insure adequate program requirements are being met for the operation of the South Idaho Cooperative Smoke Management Plan. This gives the option to the south Idaho Airshed Group, after evaluation, to establish their own monitoring unit if deemed necessary.

5. The National Weather Service will act as a technical advisor to fulfill meteorological data forecast obligations in support of federal land management agencies that are members of the South Idaho Airshed Group.

Any signatory hereto may withdraw from this agreement upon thirty (30) days written notice to the South Idaho Airshed Group in care of the Idaho Division of Environmental Quality, Air and Hazardous Waste Division Bureau. Agreed to by South Idaho Cooperative Smoke Management Agreement signatories:

Administrator  
Division of Environmental Quality

Date

Regional Forester  
U.S. Forest Service R-4  
22-MOU-99-034

Date

**NOTE:** This agreement will be reviewed, revised, and added to this Operating Guide at a later date.

#### **4. NORTH IDAHO AND MONTANA AIRSHED GROUP MEMORANDUM OF AGREEMENT**

This agreement is entered into effective August 30, 1990. The signatories to this agreement represent North Idaho and Montana Airshed Groups. These two groups agree to the following objectives of this agreement.

1. To minimize or prevent the accumulation of smoke in Idaho and Montana to such degree as is necessary to meet state and federal ambient air quality standards when prescribed burning is necessary to conduct accepted forest practices such as hazard reduction, regeneration site preparation and wildlife habitat improvement. The development of alternative methods shall be encouraged when such methods are practical.
2. To develop smoke management plans for reporting and coordinating burning operations on all forest and range lands in North Idaho and Montana. Guidelines in the plans will be based upon the principles of and technical information currently available on smoke dispersion and on state and federal air quality regulations. The two separate Cooperative Smoke Management Plans shall be reviewed periodically and changes may be made with the approval of all signatories or their designated representatives within each plan.
3. At the end of the burning year (on December 1) an evaluation of each program, review of the agreements and improvements to each Cooperative Smoke Management Plan will take place. These efforts will be coordinated between each state airshed units.
4. To enter into an agreement between the North Idaho and Montana State Airshed Units to jointly use the Smoke Management Monitoring Unit located in Missoula, Montana for the implementation of the North Idaho Cooperative Smoke Management Plan. This interim agreement will allow the North Idaho Airshed Group the flexibility to evaluate the program and make necessary changes to insure adequate program requirements are being met for the North Idaho Cooperative Smoke Management Plan. This gives the North Idaho Airshed Group the option, after evaluation, to establish their own monitoring unit, as deemed necessary.
5. To cooperate fully between the North Idaho and Montana Airshed Groups as outlined in each Cooperative Smoke Management Plan.

Agreed to by the NORTH IDAHO AND MONTANA STATE AIRSHED GROUPS:

/s/ Brian Shiplett                      August 30, 1990  
Program Coordinator

North Idaho Airshed Group

/s/ Ed Mathews                      August 30, 1990  
Program

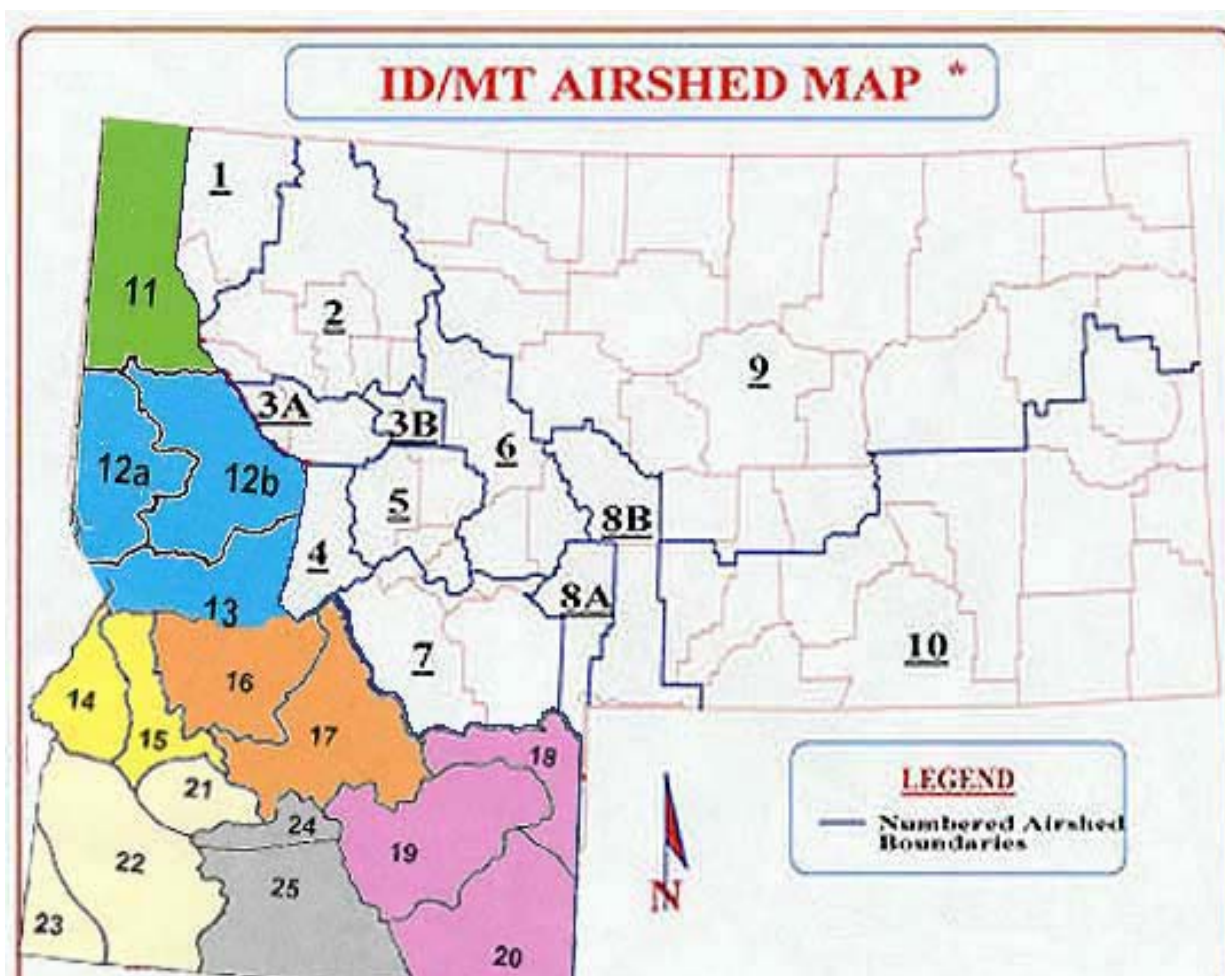
Coordinator

Group  
Montana State Airshed

## **SECTION V - APPENDICES**

1. Airshed Boundary Map
2. Airshed Boundary Description(s) - Montana included, Idaho to be added at a later date.
3. Interpretation of NWS Air Transport and Dispersion Forecasts by Airsheds - Montana included, Idaho to be added at a later date.
4. Montana fire number list and coding format with Montana deadlines
5. North Idaho fire number list and coding format with Idaho deadlines
6. South Idaho fire number list and coding format with Idaho deadlines
7. Annual reporting data format description and requirements
8. Agency, Industry, and Unit abbreviations
9. Montana/Idaho State Airshed Group master phone list.

## APPENDIX 1



## APPENDIX 2

### AIRSHED BOUNDARY DESCRIPTIONS

#### MONTANA

1. Airshed 1 contains all of Lincoln County and the northwest tip of Sanders County. The area of Sanders County included here is bordered on the north and east by Lincoln County, on the west by the Idaho border, on the south by the southern edge of the Beaver Creek drainage, through Noxon Reservoir, and the southern edge of the Vermillion River drainage.
  - a. The **Libby Impact Zone**, within Airshed 1, includes all land within the following described areas:

Beginning at Kootenai Falls (1), going southeast to Scenery Mountain (2), then south to Indian Head (3), then south to Treasure Mountain (4), then south to Mount Snowy (5), then east to Double N Lake (6), then across Highway 2 going northeast to McMillan Mountain (7), then north to Swede Mountain (8), then northeast across Highway 37 to the Vermiculite Mine (9), then west to Sheldon Mountain (10), then west northwest to Flagstaff Mountain (11), then southwest to Kootenai Falls (1), the point of beginning.
2. Airshed 2 contains all of Flathead and Lake Counties and Sanders County except for the northwest tip (described in paragraph 1) which is part of Airshed 1. Airshed 2 also contains the northern portions of Missoula and Powell Counties that lie in the Swan River drainage and the South Fork of the Flathead River drainage. The boundary here is the divide between the Swan River and the Clearwater River drainages in Missoula County and the divide between Monture Creek and the South Fork of the Flathead River drainage in Powell County. Also, the northern half of Mineral County (that portion north of Superior) is included in Airshed 2. This line runs east and west between T 16 N and T 17 N, M.P.M., then north along Mineral County to Sanders Co. line.
  - a. The **Kalispell Impact Zone**, within Airshed 2, includes all land within the following described area:

Beginning in the town of Hungry Horse, cross the Flathead River and head NW to Teakettle Mtn., then WSW to a point on Trumbull Cr., between secs. 24,25 in T31N, R21W. Go directly West to the corner of secs. 20, 21, 28, and 29 in the same Township and Range, then head North to the corner of secs. 16, 17, 20, and 21, same T. & R. Now head West to the line that divides R21W & R22W, then North to Big Mtn., then SW down Big Mtn. Ridge face toward Whitefish Lake at a point just SE of where Hell Roaring Cr. enters the lake. Cross the lake to a point called "Vista" in sec. 9, T31N, R22W, then generally follow the higher points, through Woods Lake, Murray Lake, crossing Highway 93 in sec. 24, T31N, R23W. Continue through Little Bootjack Lake and follow the high points generally WSW to a point on Tally Lake where Logan Cr. enters the lake. The boundary crosses the lake generally SSW to Talley Mtn., then generally South to Reid Pt. Lookout, then South along the "Reid Divide" to the boundary between T30N, T29W, and R23W, and R24W. Turn SE and follow the ridge to a point on Big Lost Cr... In sec. 16, T29N, R23W, then follow the ridge around to "McMannamy Draw" in sec. 26, T29N, R23W, then generally following the ridges South to Boorman Peak and then South along the Pack Trail to a point where "Dower Draw" enters Ashley Cr... Cross Ashley Cr... To a point at the foot of the ridge in sec. 19, T27N, R22W, then follow this ridge up to Wild Bill Mtn., then straight to Eagle Mtn.,

then straight to Blacktail Mtn., then generally NW to Lion Mtn., then head straight SE through Baldy Mtn., and on to the Flathead/Lake County line on Highway 93 in sec. 33, T26N, R20W. Boundary now heads directly East across Flathead Lake to Highway 35 and then follows the shore line North along the Flathead/Lake County line to the corner of secs. 4,5,8, and 9 in T26N, R19W, then directly North to Hash Mtn., then straight to Doris Mtn., then straight to Columbia Mtn., and finally straight back to the start point in the town of Hungry Horse, the point of beginning.

3. Airshed 3 includes Mineral County south of Superior, along township line separating T 16 N and T 17 N, M.P.M., all of Missoula County south of Swan-Clearwater divide, and the central portion of Powell County, which includes all of the Blackfoot River drainage. This Airshed is further divided into 3A and 3B sections. The division is a northwest-southeast line from near the headwaters of the South Fork of the Jocko River to near Garnet ghost town. 3A is in the western section. A description of the dividing line between 3A and 3B in (b) below.

- a. The **Missoula Impact Zone**, within Airshed 3, includes all land within the following described area:

Beginning at the intersection of the Carlton Creek Road and Highway 93 (1), going west to Lolo Peak (2), then north down the south fork of Lolo Creek to Highway 12, then west on Highway 12 to a point where Davis Creek enters Lolo Creek, then north to Telephone Butte (3), then northwest to Petty Mountain (4), then north to Interstate 90 where Six Mile Creek enters the Clark Fork, then northeast to a high-point (5), then east northeast to Charity Peak (6), then across Highway 93 to Murphy Peak (7), then northeast along the Reservation Boundary to Triangle Peak (8), then southeast to Boulder Lake (9), then south to Bull Lake (10), then southeast to Shoofly Meadows (11), then southwest to Sheep Mountain (12), then west southwest to Blue Point (13), then south along Johnson Gulch to Highway 200, then southwest on Highway 200 to Bonner, then east on Interstate 90 to the mouth of Bear Gulch, then up south Bear Gulch to map point 14 at the head of Bear Run Creek, then down Bear Run Creek, across Miller Creek and up to the head of Davis Creek, then down Davis Creek, across the Bitterroot River to Highway 93, then south on Highway 93 to Carlton Creek (1), the point of beginning.

- b. The line dividing Airshed 3 into 3A and 3B is described as:

A line beginning at Boles Point in Section 30, T16N, R16W, going SE to Belmont Peak, then SSE down Game Ridge to the SE corner of Section 36, T15N, R16W, then south to Morrison Peak, then SE to Lubrecht Camp, then SE along the Garnet Range Road to the Granite county line.

4. Airshed 4 contains all of Ravalli County and its boundaries are identical with the Ravalli County boundaries.
5. Airshed 5 contains all of Granite, and the southern portion of Powell County that includes the Clark Fork and Little Blackfoot River drainages. It also contains the northern half of both Deer Lodge and Silver Bow Counties. The dividing line is the continental divide starting at Mt. Tiny in Deer Lodge county to Homestake Pass in Silver Bow county.
  - a. The **Butte Impact Zone**, within Airshed 5, includes all land within the following described area:

Beginning at the top of Homestake Pass in I-90, proceeding north along the continental divide to Maxwell then NE to Whitetail Peak, then NW across I-15 to Sheephead Mtn, then W to the forest road intersection near Cotton, then SW across I-90 and SW further to Burnt Mtn. The boundary then goes eastward along the continental divide to Feeley Hill then SE to near Basin Creek Reservoir then NE to Homestake Pass, the point of beginning. Exact boundary locations can be determined from maps on file in the Monitoring Unit.

6. Airshed 6 includes all of Lewis and Clark County and most of Broadwater County excluding the small portion south of Interstate 90 from the Jefferson county line to Three Forks. It also includes the northern three-quarters of Jefferson County. The boundary across Jefferson County follows Interstate 90 from Homestake Pass to the Broadwater county line.
7. Airshed 7 includes all of Beaverhead and Madison Counties plus the southern one-quarter of Jefferson county south of Interstate 90 from Homestake Pass to the Broadwater county line. The very southern tip of Broadwater County south of Interstate 90 from the Jefferson county line to Three Forks is also included. Airshed 7 also contains the southern half of both Deer Lodge and Silver Bow counties south of the Continental Divide starting at Mt. Tiny in Deer Lodge County to Homestake Pass in Silver Bow county.
- 8A. Airshed 8A includes all of Gallatin County. The boundary is identical to the boundary of the county.
- 8B. Airshed 8B includes all of Park and Meagher Counties and the boundaries are identical to the boundaries of those two counties.
9. Airshed 9 includes all of the following counties: Glacier, Toole, Liberty, Hill, Blaine, Phillips, Valley, Daniels, Sheridan, Roosevelt, Richland, McCone, Garfield, Petroleum, Fergus, Musselshell, Golden Valley, Wheatland, Judith Basin, Choteau, Cascade, Teton and Pondera.
10. Airshed 10 includes all of Prairie, Dawson, Wibaux, Fallon, Carter, Powder River, Big Horn, Carbon, Sweet Grass, Stillwater, Yellowstone, Treasure, Rosebud, and Custer Counties.

## IDAHO

**NOTE: IDAHO AIRSHED BOUNDARY DESCRIPTIONS- To be identified, defined, and added to this Operating Guide at a later date.**

## **APPENDIX 3**

### **AIRSHED UNIT CORRELATION BETWEEN NWS FIRE WEATHER ZONES AND AIRSHEDS**

Interpretation of National Weather Service Air Transport and Dispersion Forecasts -- In order to interpret the National Weather Service Forecasts, the following guidelines should be used:

#### **MONTANA**

1. Airshed 1 (Kootenai) and Airshed 2 (Flathead):

Use dispersion forecasts for FW Zone 4. For this forecast FW Zone 4 will be extended westward to the Idaho border. When there are significant differences within this zone, the NWS forecaster will so indicate by making a specific forecast for the northwest portion of the zone (i.e., Airshed Zone 1).

2. Airshed 3 (Blackfoot-Clark Fork) and Airshed 4 (Bitterroot):

Use dispersion forecast for FW Zone 5. For this forecast FW Zone 5 will be extended southward to encompass the entire Bitterroot Valley.

3. Airsheds 5, 6, and 7 (Upper Clark Fork, Helena and Beaverhead):

Use dispersion forecasts for FW Zones 6 and 7. Due to the general elevational range and prevailing wind conditions found in these zones, we feel that pollution problems are minimal. However, the NWS forecasters will pay particular attention to both the Helena and Butte-Anaconda areas and if there are apparent problems in dispersion developing we will so indicate in the forecasts for these zones.

4. Airshed 8 (Gallatin):

Use dispersion forecasts for FW Zones 10 and 11. The main problem area within this zone appears to be in Bozeman and vicinity. The major effort and emphasis in the forecast will be concentrated in that area.

5. Airshed 9 (Missouri):

Use dispersion forecasts for FW Zones 8, 9, 12 and 14. The forecast for FW Zone 8 will come out of Missoula, the rest from Billings. This is the only airshed zone in which both Weather Service offices have some responsibility. We do not envision any problems as this zone has a very minor pollution history.

6. Airshed 10 (Yellowstone):

Use dispersion forecasts for FW Zones 13, 15 and 16. At this time, this airshed does not have any significant pollution problems due to slash disposal burning. However, in the Billings area some urban and industrial pollution does occur. Future industrial development in the lower Yellowstone airshed may produce pollution/dispersion problems. The Billings office will pay particular attention to these problems as they occur.

7. Airshed 11 (North Idaho):

Use dispersion forecasts for fire weather forecast Zone 101.

8. Airshed 12 (North Idaho):

Use dispersion forecasts for fire weather forecast one 102. Impact Zone “P” is located near fire weather forecast Zone 101 and is designated as a non-attainment area. Specific forecasts may be made for this zone.

9. Airshed 13 (North Idaho):

Use dispersion forecasts for fire weather forecast Zone 103.

IDAHO

**NOTE: Correlation between Idaho NWS Fire Weather Zones and Airsheds will be identified, defined, and added to this Operating Guide at a later date.**

## Appendix 4

### MONTANA STATE AIRSHED UNIT

#### ASSIGNED FIRE NUMBER LIST      ---      CALENDAR YEAR 1999

<u>Agency/Company</u>	<u>Numbers</u>
U.S. Forest Service (USFS) .....	1-10,000
Bureau of Land Management (BLM) .....	10,001-12,000
Bureau of Indian Affairs (BIA) .....	12,001-15,000
Glacier National Park (GNP) .....	15,001-16,000
Montana Department of Natural Resources (DNRC) .....	16,001-19,000
Pyramid Mountain Lumber .....	19,001-20,000
Darby Lumber .....	20,001-22,000
Plum Creek Timber Company .....	29,001-33,000
Montana Department of Fish, Wildlife & Parks .....	33,001-34,000
U.S. Fish & Wildlife Service .....	34,001-35,000
Louisiana Pacific .....	35,001-36,000
Stoltze Land & Lumber Company .....	37,001-39,000
R-Y Timber, Inc. ....	39,001-40,000
Stone Container Corporation .....	40,001-42,000
Yellowstone National Park .....	44,001-45,000

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STAG NUMBER	AIRSHED NO.	IMPACT ZONE	BURN TYPE	ELEVATION	PLANNED ACRES	SEC/TWN/RANGE	ACCOMP ACRES	DATE BURNED	TONS/AC CONSUMED
XXXXX	XX	X	X	XXXX	XXXX	XX XXX XXX	XXXX	XX/XX/XX	XXX

<u>BURN TYPE CODES</u>	<u>IMPACT ZONE CODES</u>
0 = UNSPECIFIED	K = KALISPELL
1 = BROADCAST	B = BUTTE
2 = HAND PILES	E = EUREKA
3 = DOZER PILES	L = LIBBY
4 = JACKPOT	T = THOMPSON FALLS
5 = WILDLIFE HABITAT	M = MISSOULA
6 = UNDERSTORY	
7 = RANGE	
8 = LANDINGS	
9 = RIGHTS OF WAY	

**NOTE:** DATE BURNED MUST BE **MO/DA/YR** - NOV 15, 1995 WOULD BE 11/15/95 - TOWNSHIP AND RANGE MUST HAVE N, S, E, OR W.

### KEY DATES TO REMEMBER FOR DATA & REPORTS TO THE MONITORING UNIT

**FALL PLANNED BURN LIST DUE JULY 31 TO MONITORING UNIT.**

**WINTER PLANNED BURN LIST DUE NOVEMBER 1 TO MONITORING UNIT.**

**END OF SEASON ACCOMPLISHMENT REPORT DUE JANUARY 31 TO MONITORING UNIT.**

**TOLL FREE NUMBER 1-800-225-6779**

Montana Unit Liaison: Meteorologist/Coordinator (December 1999).....	(406)329-4775
North Idaho Unit Liaison: Steve Douglas.....	(208)666-8651
South Idaho Unit Liaison: Krista Gollnick-Waid.....	(208)373-3856
Monitoring Unit (Missoula, MT).....	(406)329-4775

Appendix 5

**NORTH IDAHO STATE AIRSHED UNIT**

**ASSIGNED FIRE NUMBER LIST**

**CALENDAR YEAR 1999**

<b><u>Agency/Company</u></b>	<b><u>Numbers</u></b>
University of Idaho .....	46,001-47,000
Crown Pacific Inland .....	47,001-49,000
Bureau of Land Management (Idaho).....	49,001-51,000
Inland Empire Paper .....	51,001-53,000
Plum Creek (Idaho).....	53,001-55,000
Stimson Lumber .....	55,001-57,000
Idaho Department of Lands .....	57,001-60,000
Potlatch Corporation.....	60,001-63,000
Nez Perce National Forest .....	63,001-67,000
Clearwater National Forest.....	67,001-71,000
Idaho Panhandle National Forest.....	71,001-75,000
Idaho Fish and Game .....	75,001-76,000
Louisiana Pacific, Inc .....	76,001-77,000
Army Corps of Engineers .....	77,001-78,000
Coeur d'Alene Tribe.....	78,001-79,000
ADD	

**BURN TYPE CODES**

0 = UNSPECIFIED	5 = WILDLIFE HABITAT
1 = BROADCAST	6 = UNDERSTORY
2 = HAND PILES	7 = RANGE
3 = DOZER PILES	8 = LANDINGS
4 = JACKPOT	9 = RIGHTS OF WAY

**IMPACT ZONE CODES**

S = SANDPOINT
P = PINEHURST
F = FERNAN

**NOTE:** DATE BURNED MUST BE **MO/DA/YR** - NOV 15, 1995 WOULD BE 11/15/95 -  
TOWNSHIP AND RANGE MUST HAVE N, S, E, or W.

**KEY DATES TO REMEMBER**

**FALL PLANNED BURN LIST DUE AUGUST 10 TO IDAHO GROUP COORDINATOR**  
**END OF SEASON ACCOMPLISHMENT REPORT DUE DECEMBER 15 TO IDAHO UNIT**  
**LIAISON**  
**TOLL FREE NUMBER (800) 633-6247**

Montana Unit Liaison: Meteorologist/Coordinator (December 1999).....	(406)329-4775
North Idaho Unit Liaison: Steve Douglas.....	(208)666-8651
South Idaho Unit Liaison: Krista Gollnick-Waid.....	(208)373-3856
Monitoring Unit (Missoula, MT).....	(406)329-4775

## Appendix 6 SOUTH IDAHO STATE AIRSHED UNIT

### ASSIGNED FIRE NUMBER LIST

### CALENDAR YEAR 1999

<u>Agency/Company</u>	<u>Numbers</u>
Bureau of Land Management (S. Idaho).....	89,001-91,000
Idaho Department of Lands (S. Idaho).....	91,001-92,000
U.S. Fish and Wildlife Service (S. Idaho).....	92,001-93,000
Boise Cascade (S. Idaho).....	93,001-94,000
U.S. Forest Service.....	94,001-98,000

\*Subdivision of assigned Burn Numbers: Boise Cascade S.W.:93,001-93,500, Boise Cascade SITPA:93,501-94,000; IDL SW:91,000-91,300, IDL EI: 91,301-91,400, IDL SITPA: 91,401-92,000.

STAG NUMBER	AIRSHED NO.	IMPACT ZONE	BURN TYPE	ELEVATION	PLANNED ACRES	SEC/TWN/RANGE	ACCOMP ACRES	DATE BURNED	TONS/AC CONSUMED
XXXXX	XX	X	X	XXXX	XXXX	XX XXX XXX	XXXX	XX/XX/XX	XXX

#### BURN TYPE CODES

0 = UNSPECIFIED      5 = WILDLIFE HABITAT  
1 = BROADCAST        6 = UNDERSTORY  
2 = HAND PILES        7 = RANGE  
3 = DOZER PILES       8 = LANDINGS  
4 = JACKPOT            9 = RIGHTS OF WAY

#### BURN TYPE CODE DESCRIPTORS

1-Broadcast-unpiled activity fuels, heavy  
2-Hand Piles-hand piled activity fuels  
3-Dozer Piles-machine piled activity fuels  
4-Jackpot-unpiled activity fuels, light  
5-Wildlife habitat-timber with shrub understory  
6-Understory-natural fuels, timber/litter  
7-Range-grass, brush and/or shrub fuels

**IMPACT ZONE CODES:** BOI = BOISE; MYL = McCALL; SMN = SALMON; SUN = SUNVALLEY/KETCHUM; IDA = IDAHO FALLS; TWF = TWIN FALLS; PIH = POCATELLO.

#### **DISPATCH CENTERS**

**Airsheds 14,15\_MCCALL:** Duke Norfleet, Forest Dispatch Payette N.F., P.O. Box 1026, McCall, ID 83638 (208)634-0397, [dnorfleet/r4\\_payette@fs.fed.us](mailto:dnorfleet/r4_payette@fs.fed.us).

**Airsheds 21,22,23 BOISE:** Steve Waters, Interagency Center Manager, 3948 Development Ave., Boise, ID 83705, (208)384-3400, [swaters/r4\\_boise@fs.fed.us](mailto:swaters/r4_boise@fs.fed.us).

**Airsheds 24,25 SHOSHONE:** Frank Miller, Center Manager, Shoshone BLM, P.O. Box 2B, Shoshone, ID 83352, (208)886-7240, [fmiller@id.blm.gov](mailto:fmiller@id.blm.gov).

**Airsheds 18,19,20 IDAHO FALLS:** Gina Martin, Center Manager, Idaho Falls BLM, 1405 Hollypark Dr., Idaho Falls, ID 83401, (208)524-7615, [g40marti@blm.gov](mailto:g40marti@blm.gov)

**Airsheds 16,17 SALMON Paul Sever.** Interagency Logistics Coord. Salmon/Challis NF. RR2 Box 600, Salmon, ID 83467 (208)756-5254, [psever/r4\\_s-c@fs.fed.us](mailto:psever/r4_s-c@fs.fed.us).

**NOTE:** DATE BURNED MUST BE **MO/DA/YR** - NOV 15, 1995 WOULD BE 11/15/95 - TOWNSHIP AND RANGE MUST HAVE N, S, E, or W.

### **KEY DATES TO REMEMBER**

FALL PLANNED BURN LIST DUE **AUGUST 10** TO SOUTH IDAHO UNIT LIAISON  
END OF SEASON ACCOMPLISHMENT REPORT DUE **DECEMBER 15** TO SOUTH IDAHO UNIT LIAISON  
South Idaho has two numbers to obtain air quality information, (208)373-0313 (Boise), and (208) 236-6173 (Pocatello)

Montana Unit Liaison: Meteorologist/Coordinator (December 1999).....(406)329-4775  
North Idaho Unit Liaison: Steve Douglas.....(208)666-8651  
South Idaho Unit Liaison: Krista Gollnick-Waid.....(208)373-3856  
Monitoring Unit (Missoula, MT).....(406)329-4775

## APPENDIX 7

### Formatting of the Lotus Approach Annual Burnlist Reports

AIRSHED	IMPZONE	AGENCY	UNIT	BURNTYPE	ELEVMIN	ACREAGE	QUARTER	BEGINSECT	ENDSECT	TOWN	RANGE	FUELLOAD	ACCDATE
07	M	USFS	BDF	4	6400	1		09	09	05S	10W	7	09/21/9
07	L	USFS	BDF	1	8000	25		18	18	05S	10W	15	09/29/9
07	K	USFS	BDF	1	8460	25		19	19	05S	10W	22	10/06/9
07	B	USFS	BDF	1	8000	50		01	01	04S	11W	31	
07		USFS	BDF	1	8000	38		12	12	04S	11W	8	
07		USFS	BDF	1	7400	40		11	11	08S	16W	10	
07		USFS	BDF	2	7000	15		08	08	12S	14W		10/15/9

- 1) AIRSHED: Two digit designated airshed number for each proposed burn.
- 2) IMPACT ZONE: One to three alphabetic abbreviation of designated impacts zones within each proposed burn.
- 3) AGENCY: Respective Agency or Industry abbreviation. Please refer to Appendix D-5 for agency abbreviations.
- 4) UNIT: Individual unit, such as a specific forest, designation. Please refer to Appendix D-5 for unit abbreviations.
- 5) BURNTYPE: One digit numeric code representing the burn type for each proposed burn. If two types of burns are to take place choose the burn type most representative of the burns management goals and objectives. Example: a broadcast burn is completed to enhance wildlife habitat. Enter the burn type representing wildlife habitat (5), because it is most representative of management objectives for the prescribed burn.
- 6) ELEVMIN: Mid-elevation of the unit proposed for burning. Example: Top elevation is 7500, bottom elevation is 5500, mid-elevation is 6500
- 7) ACREAGE: nearest whole number representing acres projected to be burned.
- 8) QUARTER: Quarter section of the section to be burned. Example: Northwest quadrant of section 23, enter as NW.
- 9) BEGINSECT: Two-digit numeric value of the section(s) proposed for burning. If more than one section is to be burned, the smallest numeric value of the sections proposed for burning goes here. Example: Sections 12,15,19, 23 will be involved in proposed burn, BEGINSECT value is 12
- 10) ENDSECT: Two-digit numeric value of the section(s) proposed for burning. If one section is to be burned this value will be the same as BEGINSECT, if more than one section is proposed the largest numeric value of the sections proposed for burning goes here. Example: Section 1 is proposed for burning, ENDSECT value is 01. Sections 12,15,19,23 are involved in the proposed burn, ENDSECT value is 23.
- 11) TOWN: Township of the section(s) proposed for burning. If more than one township is involved enter the first township. Enter two digit numeric values accompanied by N,S,E,W designation. Example: Township 27 west is entered as 27W
- 12) RANGE: Range of the section(s) proposed for burning. If more than one range is involved enter the first range. Enter two digit numeric values accompanied by N,S,E,W designation. Example: Range 2 west is entered as 02W
- 13) FUELLOAD: Estimated fuel loading of section(s) proposed for burning. Numeric values are to be expressed as tons/acre.
- 14) ACCDATE: Date proposed burn was accomplished. Example: September 21, 1999 is 09/21/99
- 15) ACCTPA: Value of fuel reduction expressed in tons/acres consumed.
- 16) ELEVMAX: N/A

TO COPY YOUR BURNLIST FILE TO A FLOPPY DISK:

- 1) On the tool bar at the top of your Lotus Approach file select (click on) Report. From the Report drop down menu box select "export data to a:/burndata.dbf". The program will automatically move the database onto the disk.



## APPENDIX 8

### AGENCY, INDUSTRY, AND UNIT ABBREVIATIONS

AGENCY/INDUSTRY		
NAME	ABBR.	UNIT ABBR.
Blackfeet	BIA	BLF
Crow Reservation	BIA	CRO
Flathead Agency	BIA	FLT
Northern Cheyenne	BIA	NOC
Rocky Boy Agency	BIA	RBA
Unspecified Tribal Agency	BIA	
Bureau of Indian Affairs ID	BIAI	BII
Butte BLM Office	BLM	BUT
Lewistown BLM Office	BLM	LEW
Miles City BLM Office	BLM	MC
Coeur d'Alene BLM Office	BLMI	CDA
Brand S Office	BRS	BRS
Albeni Falls Office	CPI	AF
Bonniers Ferry Office	CPI	BF
Coeur d'Alene Office	CPI	CDA
Thompson Falls Office	CPI	TF
Unspecified Office	CPI	
Darby Lumber, Ind.	DLI	DLI
Central Land Office DSL	DSL	CLO
Eastern Land Office DSL	DSL	ELO
Northeast Land Office DSL	DSL	NE
Northwest Land Office DSL	DSL	NW
Southern Land Office DSL	DSL	SLO
Southwest Land Office DSL	DSL	SW
Mt Dept. Fish, WL. & Parks	FWP	FWP
U.S. Fish, WL. & Parks	FWS	FWS
Glacier National Park	GNP	GNP
Cataldo Office IDL	IDL	CAT
Clearwater-Potlatch TPA	IDL	CPT
Cragmont Fire Prot. Dist. IDL	IDL	CMF
Kootenai Valley IDL	IDL	KOO
MICA FPD IDL	IDL	MIC
Maggie Creek IDL	IDL	MAG
Pend O'Reille IDL	IDL	POR
Ponderosa IDL	IDL	PON
Priest Lake IDL	IDL	PRL
West St. Joe IDL	IDL	WSJ
Southwest Office	IDL	SWS
Eastern Office	IDL	EI
Inland Empire Paper	IEP	IEP

**AGENCY/INDUSTRY**

<b>NAME</b>	<b>ABBR.</b>	<b>UNIT ABBR.</b>
Idaho Fish and Game	IFG	IFG
Deer Lodge	LP	LP
Louisiana Pacific (ID)	LPI	LPI
CDA/Newport	PCID	PCID
Clearwater Unit	PCID	CLW
Lochsa	PCID	LOC
St. Maries	PCID	STM
Unspecified	PCID	
Clearwater Office	PLUM	CLW
Flathead Office	PLUM	FLA
Gallatin Office	PLUM	GAL
Missoula Office	PLUM	MSO
Seeley Lake Office	PLUM	SEE
Central Office Pyramid Mnt.	PMID	CEN
Eastern Office Pyramid Mnt.	PMID	EST
Western Office Pyramid Mnt.	PMID	WST
Boyill Office	POT	BOY
Clarkia Office	POT	CLA
Elk River Office	POT	ELK
Headquarters Office	POT	HOR
Orfino Office	POT	ORO
Potlatch	POT	POT
Panhandle R.M.U.	POT	PAN
Pierce Office	POT	PIE
Southwick Office	POT	SWK
St. Maries Office	POT	STM
R-Y Timber Inc.	RY	RY
Smurfit-Stone Container Corp	SCC	SCC
Stoltz Land & Lumber	STO	STO
University of Idaho	UI	UI
Beaverhead Deerlodge NF	USFS	BNF
Bitterroot National Forest	USFS	BRF
Clearwater National Forest	USFS	CWF
Custer National Forest	USFS	CNF
Flathead National Forest	USFS	FNF
Gallatin National Forest	USFS	GNF
Helena National Forest	USFS	HNF
Idaho Panhandle NF	USFS	IPF
Kootenai National Forest	USFS	KNF
Lewis and Clark NF	USFS	LCF
Lolo National Forest	USFS	LNF
Nez Perce National Forest	USFS	NPF
S. ID. Timber Prot. Assoc.	IDL	SIS
Boise Cascade-SITPA	BCC	SIS
Boise Cascade-Southwest	BCC	SWS

## **Appendix R (Minimum Impact Suppression Tactics)**

## **Minimum Impact Suppression Tactics Guidelines**

### **General Discussion**

Suppression tactics will have an impact on the landscape. Following the Minimum Impact Suppression Tactics (MIST) guidelines outlined below can reduce the degree of long-term impacts associated with wildland fire suppression tactics. It is important that decisionmakers are aware of the long-term impacts fire suppression tactics can have on the landscape, and very carefully weigh those long-term impacts to fire suppression safety issues related to wildland fire incidents. The following are MIST standards that will be used in HAFO.

### **Tactical Standards**

- 1) Fireline construction will be minimized by taking advantage of natural barriers, rock outcrops, trails, roads, streams, lakes, and other existing fuelbreaks.
- 2) Firelines will be the minimum width necessary to halt the spread of the fire and will be placed to avoid impacts to natural, paleological and cultural resources vulnerable to the effects of fire and fire suppression activities. Bulldozers may be used only by approval of Park Superintendent or Acting Superintendent.
- 3) Unburned material may be left within the final line.
- 4) Clearing and scraping will be minimized.
- 5) Where possible, on site archeological clearance will be obtained prior to line construction.

### **Terminating the Fire**

- 1) The route to the fire from the nearest trail or road will be flagged. Flagging will be removed by the last person to leave the area.
- 2) All equipment and debris will be removed from the area for proper disposal.
- 3) Before leaving the fire, rehabilitation will be completed to eliminate impacts from the suppression effort.

### **Restoration of Fire Area**

- 1) Backfill cup trenches and scarify wide firelines.
- 2) Construct waterbars to prevent erosion.
- 3) Place “boneyards” in a natural or random arrangement.

### **Retardant Aircraft**

- 1) Avoid drops near water sources.
- 2) Use water drops where practical.